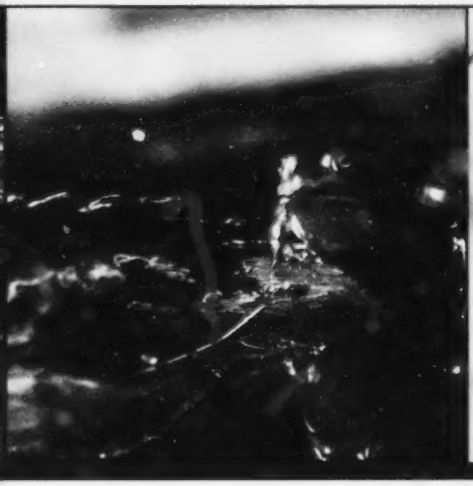
Great Lakes Wetlands Conservation Action Plan

Highlights Report

(2000 – 2003)



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Ducks Unlimited Canada

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Visit www.on.ec.gc.ca/wetlands/glwcap-e.cfm

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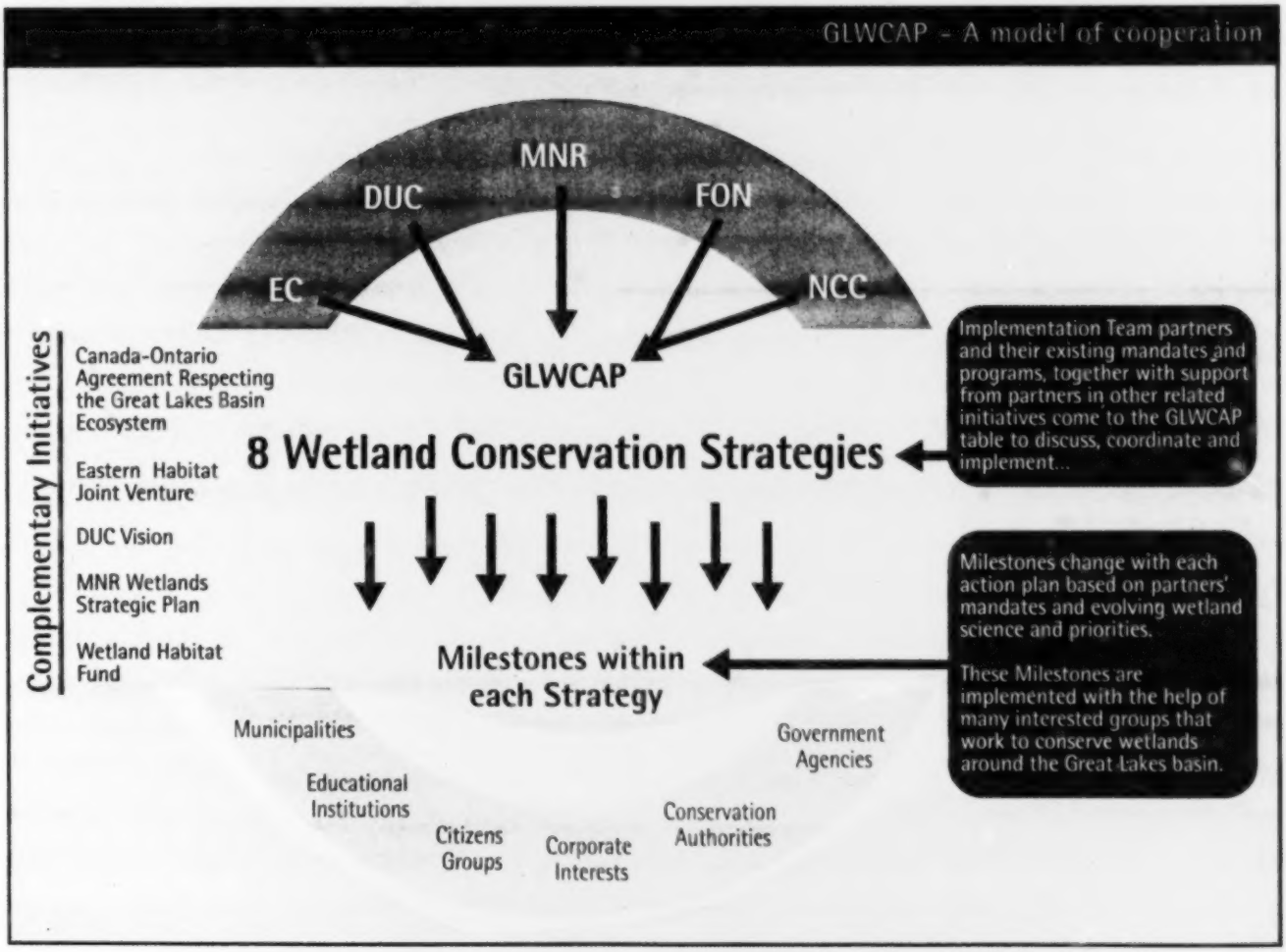
Wetland Conservation in the Great Lakes Basin

The Great Lakes Wetlands Conservation Action Plan (GLWCAP) is one of the most well established wetland conservation programs in the Great Lakes basin. Through coordinating, implementing and reporting on wetland activities of both government agencies and non-government organizations in Canada, GLWCAP plays a key role in ensuring the conservation of Great Lakes wetlands. When it began in 1994, GLWCAP was not a new program with a designated or collective pool of resources; rather it was a new way of doing business through agreeing on priorities and the aggressive pursuit of wetland conservation opportunities under existing programs. It remains that way today.

GLWCAP partners, including a variety of agencies, interests and community stakeholders, take responsibility to collectively deliver individual projects, milestones and strategies that best complement their strengths and interests. It is overseen by an Implementation Team including the Ontario Ministry of Natural Resources (MNR), Environment Canada (EC), Ducks Unlimited Canada (DUC), the Nature Conservancy of Canada (NCC) and the Federation of Ontario Naturalists (FON).

GLWCAP is organized into eight long-term strategies that encompass all aspects of wetland conservation – from physical protection and rehabilitation, to improvement of wetland legislation and increasing awareness of wetland functions and values. Within each strategy are a series of milestones, or specific actions setting out steps that when completed, represent continued progress under each GLWCAP Strategy.

GLWCAP is the implementation mechanism for the 25-year Strategic Plan for Wetlands of the Great Lakes Basin developed in 1993 by more than 30 partners following extensive public and private consultation. It complements the goals of the Provincial Wetlands Policy (1996) (which is a component of the Provincial Policy Statement) and the Federal Wetlands Policy (1991). These two levels of government endorsed the first Action Plan in 1994 through the signing of the Canada-Ontario Agreement Respecting the Great Lakes Basin Ecosystem (COA), which incorporated commitments to GLWCAP.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DUC Vision
MNR Wetlands Strategic Plan
Wetland Habitat Fund
8 Wetland Conservation Strategies
Milestones within each Strategy
Milestones change with each action plan based on partners' mandates and evolving wetland science and priorities.
These Milestones are implemented with the help of many interested groups that work to conserve wetlands around the Great Lakes basin.
Municipalities
Educational Institutions
Citizens Groups
Corporate Interests
Conservation Authorities
Government Agencies

In 2000, the first Action Plan wrapped up while planning for a second Action Plan began. Conservation milestones for the second phase of GLWCAP are published on page 41 of this report. Development of Phase Two involved evaluating the previous Action Plan to assess progress towards the completion of each milestone (see GLWCAP Highlights Report (1997-2000) at www.on.ec.gc.ca/wetlands/onlinepublications-e.cfm). The relevance of each milestone to today's wetland conservation environment was also considered, given changes in policy and scientific understanding since the initial implementation of GLWCAP. Phase Two does not present new strategies, as there will always be work to be done to further wetland conservation within these broad areas. It does present new and modified milestones to guide continued progress under each strategy.

The Canada-Ontario Agreement Respecting the Great Lakes Basin Ecosystem (COA)

The COA represents a commitment by the governments of Canada and Ontario to restore and protect the Great Lakes Basin ecosystem. Renewed in 2002, the current Agreement outlines how the two governments will cooperate and coordinate their efforts to achieve this goal, and builds on the actions taken through previous agreements, and focuses priorities for future actions.

For more information, visit www.on.ec.gc.ca/coa

The COA was renewed and signed in March 2002. This document included an overarching agreement to stand in perpetuity, containing four annexes, each of which specifies five-year goals for the Great Lakes basin ecosystem. The Lakewide Management Annex includes a commitment for Canada and Ontario to "implement the Great Lakes Wetlands Conservation Action Plan".

Green Frog

John Mitchell

The importance of GLWCAP as a Great Lakes wetlands reporting mechanism was endorsed in a recent report released by the Office of the Auditor General on the federal government's Great Lakes Program entitled the 2001 Report of the Commissioner of the Environment and Sustainable Development. The report assesses the federal government's performance in protecting the Great Lakes basin ecosystem, including wetlands, and refers to the two previous GLWCAP Highlights Reports as "the most comprehensive information" available for assessing wetlands in the Great Lakes in "a reader friendly way".

GLWCAP partners continue a successful reporting tradition by presenting this update on progress made in wetlands conservation since the last Highlights Report (1997-2000). GLWCAP partners recently endorsed the milestones for the second Action Plan and are pleased to present them in this report. Evaluation of progress towards the new milestones would be premature, but it remains essential during these transition years to report on successful projects and achievements. This report presents descriptive updates of Great Lakes wetlands activities under each of the eight long-term GLWCAP strategies, the common threads connecting successive Action Plans.

Wetland Conservation in the Great Lakes Basin

The Great Lakes Wetlands Conservation Action Plan (GLWCAP) is one of the most well established wetland conservation programs in the Great Lakes basin. Through coordinating, implementing and reporting on wetland activities of both government agencies and non-government organizations in Canada, GLWCAP plays a key role in ensuring the conservation of Great Lakes wetlands. When it began in 1994, GLWCAP was not a new program with a designated or collective pool of resources; rather it was a new way of doing business through agreeing on priorities and the aggressive pursuit of wetland conservation opportunities under existing programs. It remains that way today.

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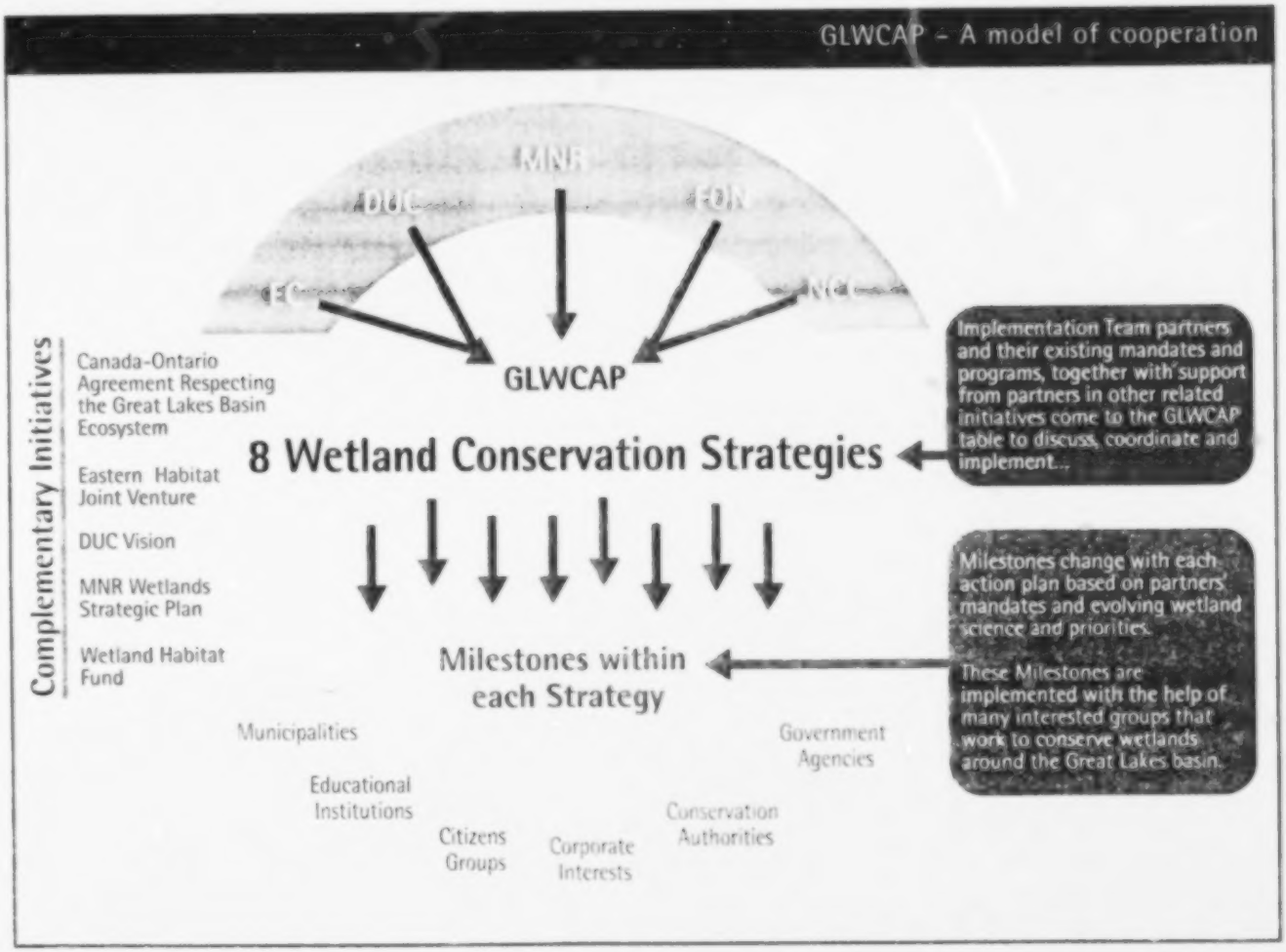
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For more information, visit www.on.ec.gc.ca/coa.

Section 2.3 of the Provincial Policy Statement protects natural heritage features and areas, such as significant wetlands, from incompatible development. Site development and alteration affecting wetlands is:

- prohibited in significant wetlands south and east of the Canadian Shield;
- permitted in significant wetlands in the Canadian Shield provided there will be no negative impacts on the natural features or the ecological functions; and,
- permitted on lands adjacent to significant wetlands provided there will be no negative impacts on the natural features or the ecological functions.

For more information on the Federal Wetlands Policy and Provincial Policy Statement, visit www.cws-scf.ec.gc.ca/habitat/ramsar/docs/FPWC.pdf and www.mah.gov.on.ca respectively.

John Mitchell

The "Great" in Great Lakes Wetlands

Many Great Lakes residents have gained appreciation for the importance of wetlands simply by spending time in them. Quietly observing wetland wildlife in a local marsh or swamp evokes tacit understanding of some of the functions and values that wetlands contribute to the quality of life of humans and other living creatures.

Wetland functions include natural processes such as retaining and slowing water during flood conditions, recharging groundwater supplies, maintaining stream baseflow, removing nutrients and other contaminants from the water column, and providing habitat for hundreds of species of wetland-dependent plants, birds, amphibians, reptiles, fish, insects, and mammals, including many species at risk of extinction.

Humans value wetlands for recreational activities such as bird watching, canoeing, fishing and hunting, improving drinking water quality, providing aesthetic enjoyment, and producing harvestable commodities such as cranberries, wild rice and fish.

Unfortunately, in spite of their recognized values, wetland loss and degradation across the Great Lakes basin continue at an alarming rate. Scientists, educators, naturalists, and policy makers must coordinate efforts to ensure that wetlands are protected well into the future.

Matt Young

Wetland Conservation Highlights

Wetland conservation and science has progressed significantly since the 2000 Highlights Report and the wrap-up of the first GLWCAP. The following sections highlight wetland activities, projects and programs that are new or have progressed since 2000. These achievements are organized under GLWCAP strategies and many build on the stories presented in the 1997 and 2000 Highlights Reports, which can be found at www.on.ec.gc.ca/wetlands/onlinepublications-e.cfm.

GLWCAP STRATEGIES

1. Increase Public Awareness and Commitment to Protecting Wetlands
2. Improve Wetland Science, Data and Monitoring
3. Secure Wetlands
4. Create, Reclaim, Rehabilitate and Manage Wetlands
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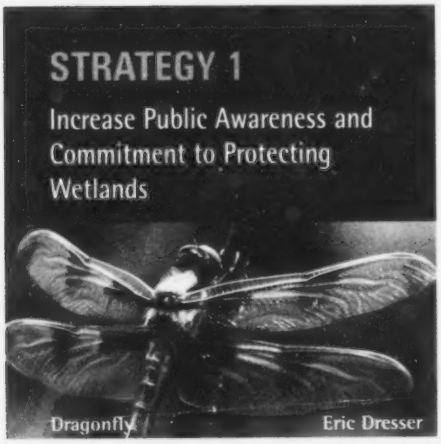

Public awareness of the importance of wetlands, as well as citizens' actions to benefit wetlands, have increased through a variety of outreach materials and activities.

Copies of the following documents are available from each of the respective organizations (see Contacts on page 45).

Ontario Ministry of Natural Resources (MNR)

- *Temperate Wetland Restoration Training Course Instructional Materials*, 2002 (365 pp.)
- *A Guide to Stewardship Planning for Natural Areas*, 2003 (40 pp.)
- *The Wetland Drain Restoration Project: 'How To' Guide*, 2003 (57 pp.)

Environment Canada

- *Where Land Meets Water: Understanding Great Lakes Wetlands*, 2002 (72 pp.)
- *Great Lakes Coastal Wetlands: Science and Conservation*, Great Lakes Fact Sheet Series, 2002 (12 pp.)
- *Putting an Economic Value on Wetlands – Concepts, Methods and Considerations*. Great Lakes Fact Sheet Series, 2001 (12 pp.)
- *Status and Trends in Fish and Wildlife Habitat on the Canadian Side of Lake Ontario*, 2001 (24 pp.)
- *Fish and Wildlife Habitat Status and Trends in the Canadian Watershed of Lake Ontario*, 2001 (150 pp.)
- Ecological Gifts Program Donor Kit – An informative folder that contains a brochure, donor profiles, tax examples, and donor question and answer fact sheet, 2002
- Ecological Gifts Program Recipient Questions and Answers, 2002 (2 pp.)

Federation of Ontario Naturalists

- Wildlife in Jeopardy Education Kit, 2000 (266 pp.)
- *Protecting Nature Close to Home: A Guide to Municipal Environmental Advisory Committees in Ontario*. Revised 2002 (32 pp.)
- *A Smart Future for Ontario: How to Protect Nature and Curb Sprawl in Your Community*, 2002 (72 pp.)

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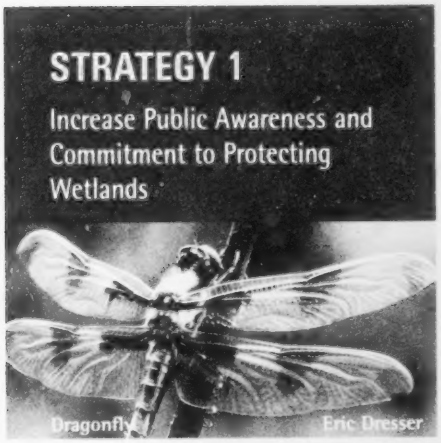

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Wildlife Habitat Canada

- *The Status of Wildlife Habitats in Canada 2001* (98 pp.)

Marsh Monitoring Program

(contact Bird Studies Canada)

- *The Marsh Monitoring Program 1995-1999: Monitoring Great Lakes Wetlands and Their Amphibian and Bird Inhabitants*, 2000 (48 pp.)

Close to Home: Wetlands of Ontario Website – www.on.ec.gc.ca/wetlands

Visit this site for an overview of wetland science, monitoring and rehabilitation activities throughout Ontario. This recently created Environment Canada website features the GLWCAP website – a link is available from the main page.

Tools for Canadians: Wetkit – www.wetkit.net

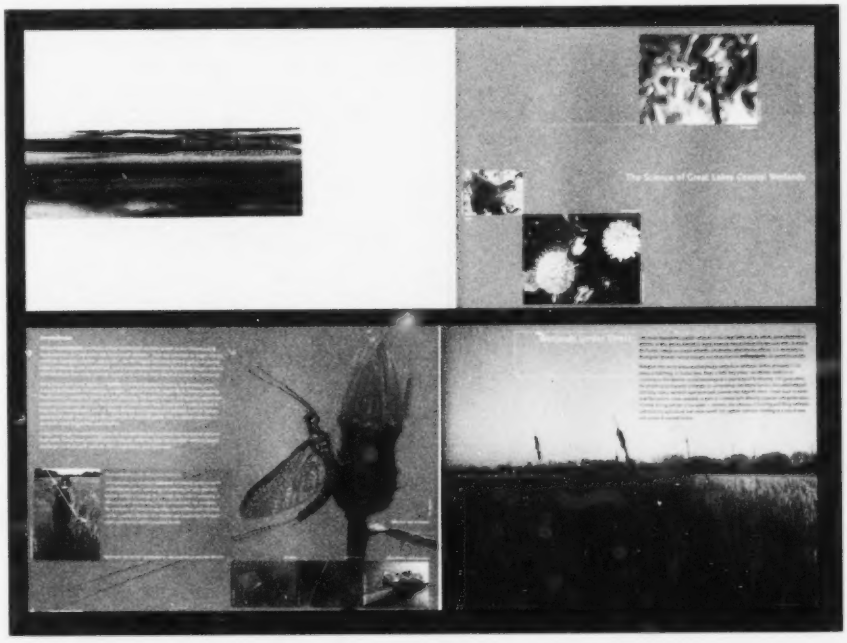
National wetland information and resources have found a home on-line. Wetkit is a web-based clearinghouse for information related to wetlands, streamlining access to practical tools that can help Canadians better understand and manage wetlands. Tools that are found on Wetkit are generally practical and related to Canadian wetland management.

Wetkit tools include conservation techniques, technologies, decision aids, handbooks, field guides, maps and inventories, case studies, laws, policies, information on tax incentives, agencies that provide advice or funding, teaching kits, and professional training. There is an opportunity to rate tools on-line.

Wetkit was established in 2000 by Environment Canada, Fisheries and Oceans Canada, Industry Canada, Natural Resources Canada, Wildlife Habitat Canada, Ducks Unlimited Canada and the North American Wetlands Conservation Council (Canada).

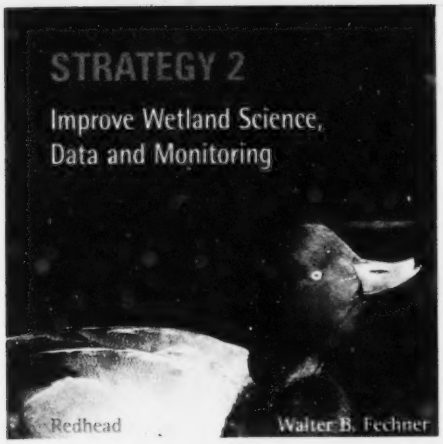
New! Where Land Meets Water: Understanding Wetlands of the Great Lakes

Coastal wetlands are a valuable resource to all residents of the Great Lakes basin ecosystem, with new information regarding their functions and values being uncovered every day. Wetland scientists, managers and conservationists met at the Quebec 2000: Millennium Wetland Event in Quebec City for a symposium dedicated to the science and conservation of coastal wetlands. Organizers of the symposium felt that the outcome of that session needed to be presented to a wider Great Lakes audience. The result, a book entitled *Where Land Meets Water: Understanding Wetlands of the Great Lakes*, was released in October 2002. The book incorporates the original research and ideas presented at the coastal wetlands symposium, with background material on the history and functions of these fascinating ecosystems.



Topics explored in the book include wetland evolution and classification; ecological functions and values of wetlands; coastal wetland ecology; wetland stressors; wetland rehabilitation, including case studies; and, wetland conservation activities.

The book is available from Environment Canada at (416) 739-5830 or Wildlife.Ontario@ec.gc.ca.



This strategy will be one of the most important in GLWCAP Phase Two. All partners play an increased role in furthering what is known about Great Lakes wetlands and the processes that drive the many benefits on which humans and wildlife depend. Some of the emerging issues identified in the 2000 Highlights Report (e.g., Lake Ontario water level regulation, species at risk) are addressed in projects presented in this section.

The State of the Lakes Ecosystem Conference (SOLEC)

SOLEC is a binational, biennial conference developed to report on the health of the Great Lakes basin ecosystem and on progress towards the goals of the Great Lakes Water Quality Agreement. Hosted by the governments of Canada and the United States since 1994, SOLEC objectives include:

- assess the state of the Great Lakes ecosystem based on accepted indicators;
- strengthen decision-making and environmental management concerning the Great Lakes;
- inform local decision-makers of Great Lakes environmental issues; and,
- provide a forum for communication and networking amongst all Great Lakes stakeholders.

Since the last GLWCAP Highlights Report, two SOLEC meetings have occurred. In October 2000, in Hamilton, Ontario, scientists, government officials, aboriginal groups and non-government organizations gathered to further refine and begin reporting on 33 of the 80 indicators of ecosystem health developing through the SOLEC process. Coastal wetland indicators are one of the key assessment tools, along with the nearshore terrestrial, and open and nearshore waters indicators. In 2000, data were presented on five of 13 coastal wetland indicators: wetland-dependent bird diversity and abundance; amphibian diversity and abundance; contaminants in Snapping Turtle eggs; effect of water level fluctuations; and, wetland area.

In October 2002, many of the same Great Lakes stakeholders gathered in Cleveland, Ohio to continue the process of reporting on indicators and begin in-depth assessments on the state of the Great Lakes ecosystem based on what the indicators are revealing. At SOLEC 2002, there was a special focus on biological integrity, and identifying indicators to assess the biological integrity of the Great Lakes, including many of the coastal wetland indicators.

The next two SOLEC events in 2004 and 2006 will focus on chemical and physical integrity. This framework of biological, chemical and physical integrity will be used for reporting on the state of the Great Lakes as determined through the Great Lakes Water Quality Agreement.

For more information, visit www.on.ec.gc.ca/solec.

Great Lakes Coastal Wetlands Consortium

The coastal wetland indicators developed through SOLEC are moving forward through the efforts of the Great Lakes Coastal Wetlands Consortium.

The Consortium is a three-year project brought together by the Great Lakes Commission in November 2000 with funding from the U.S. Environmental Protection Agency. The Consortium emerged from the SOLEC process and is composed of U.S. and Canadian scientists, policy makers and others dedicated to Great Lakes coastal wetland science, monitoring and conservation. The Consortium is focused on refining coastal wetland indicators, as recommended at SOLEC 1998, and developing long-term binational monitoring strategies.

In 2002, the Consortium selected six research projects to test the robustness and applicability of various sampling methods and coastal wetland metrics across the basin in a collaborative fashion. Standardized sampling protocols and methodologies are being tested on over 30 coastal wetland sites distributed across the Great Lakes basin. The data will be compiled centrally and integrated into existing databases to enable cross-site comparisons and further validation of Great Lakes coastal wetland indicators.

Other activities underway include creation of a binational coastal wetland database using a standardized classification system and development and evaluation of plans for a long-term Great Lakes coastal wetlands monitoring program.

For more information, visit www.glc.org/wetlands.

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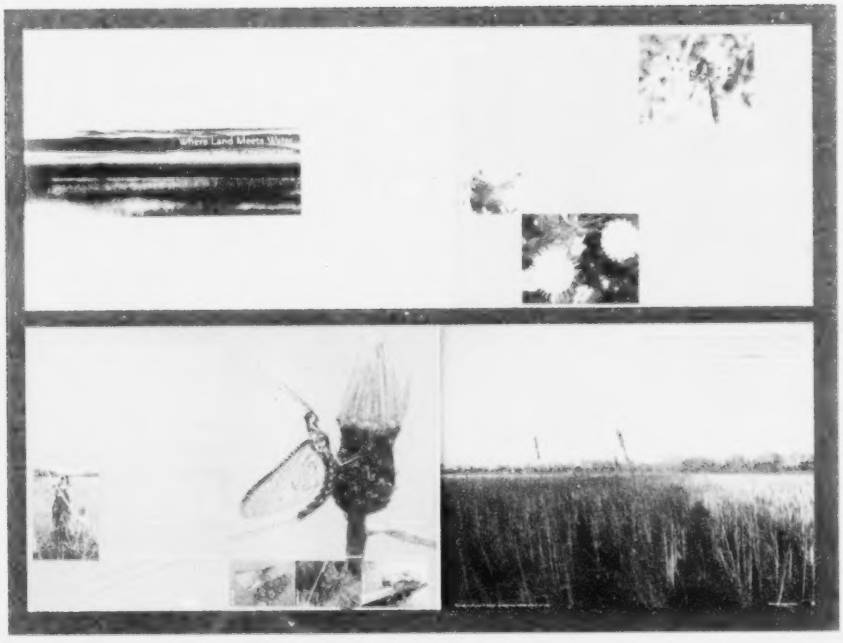

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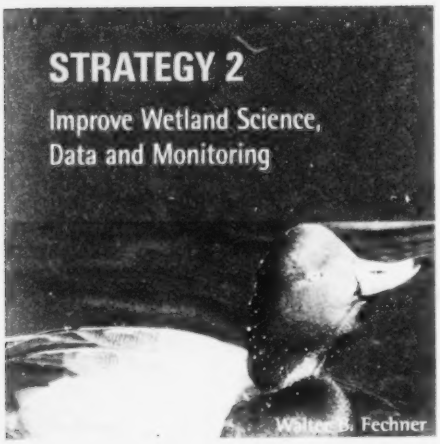

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In 2002, the Consortium selected six research projects to test the robustness and applicability of various sampling methods and coastal wetland metrics across the basin in a collaborative fashion. Standardized sampling protocols and methodologies are being tested on over 30 coastal wetland sites distributed across the Great Lakes basin. The data will be compiled centrally and integrated into existing databases to enable cross-site comparisons and further validation of Great Lakes coastal wetland indicators.

Other activities underway include creation of a binational coastal wetland database using a standardized classification system and development and evaluation of plans for a long-term Great Lakes coastal wetlands monitoring program.

Population Trends: Monitoring Amphibians

The binational, long-term, volunteer-based Marsh Monitoring Program (MMP) is now in its eighth year and continues to generate interesting and useful information about trends in wetland bird and amphibian populations and their habitats. Since 1995, MMP volunteers have surveyed amphibian populations at 474 routes across the Great Lakes basin. Thirteen species were recorded during the 1995-2001 period, the most common being Spring Peeper and Green Frog.

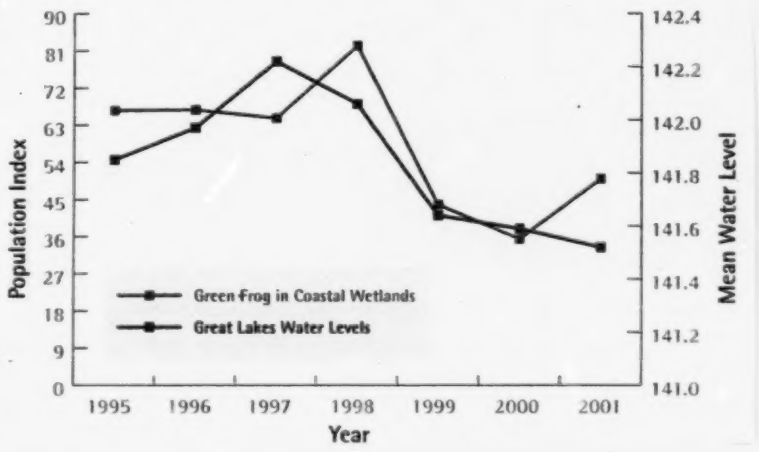
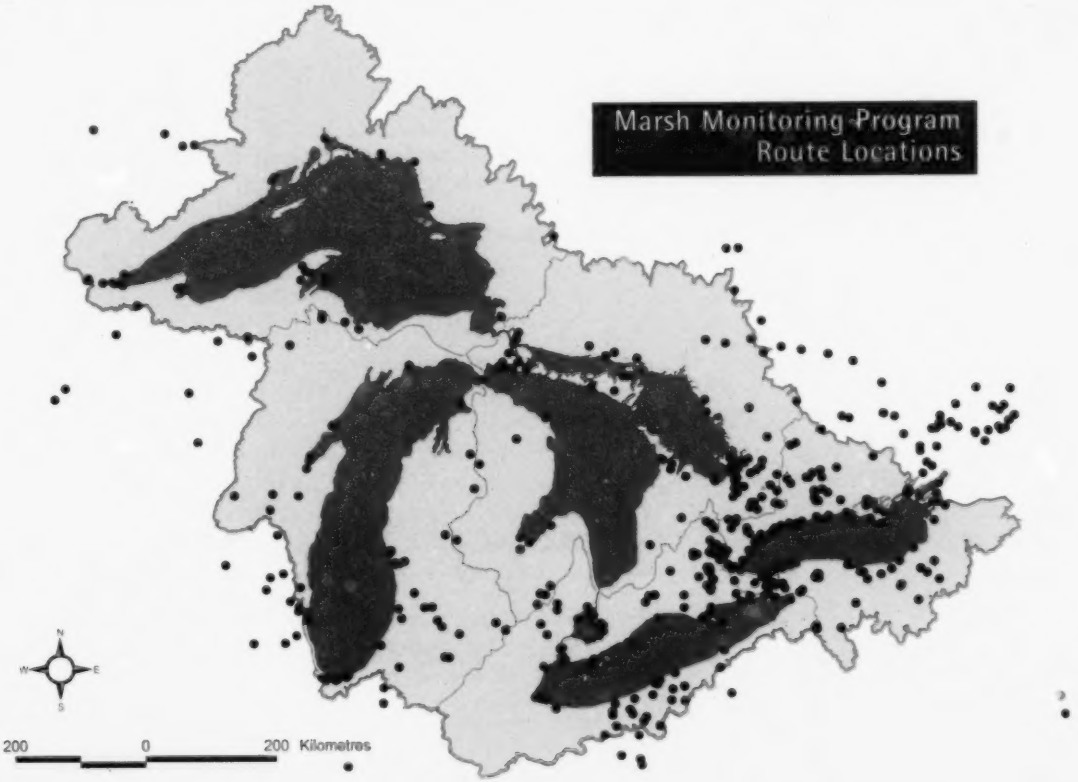


Figure 1: Annual population indices of Green Frog at coastal and inland MMP routes throughout the Great Lakes basin as compared to mean annual water levels of all Great Lakes combined 1995-2001.

Trends in amphibian occurrence were assessed for eight species regularly detected on MMP routes. Statistically significant declines in trends were detected for American Toad, Chorus Frog, and Green Frog. Using water levels of the Great Lakes as a proxy for water conditions throughout the basin, comparisons were made between trends in mean annual water levels of the Great Lakes and trends in amphibian annual population (relative occurrence) indices in coastal and inland wetlands. Some trends (Bullfrog, Green Frog) appeared to correlate with mean annual lake levels (Figure 1), whereas others (American Toad, Chorus Frog) showed no apparent relation. Differences in habitats, regional population densities, timing of survey visits, annual weather variability, or other additional factors may interplay with water levels to explain variation in species-specific amphibian populations.

These data will lead to a better understanding of the health of Great Lakes amphibian populations and the wetlands that they inhabit. Anecdotal and research evidence suggests that wide variation in occurrence of many amphibian species at a given site is a natural and ongoing phenomenon. These variations are apparent for many of the amphibian species monitored during the past seven years. Additional years of data will help reveal whether the observed patterns (e.g., decline in numbers of American Toad and/or Chorus Frog) continue and indicate significant long-term trends. Further data are required to conclude whether Great Lakes wetlands are successfully sustaining amphibian populations.



The MMP is delivered by Bird Studies Canada in cooperation with Environment Canada (Canadian Wildlife Service and the Great Lakes Sustainability Fund), the U.S. Great Lakes Protection Fund, and the U.S. Environmental Protection Agency.

For more information, contact Bird Studies Canada (see Contacts) or visit: www.bsc-eoc.org/mmpmain.html.

MMP volunteer in action. A cassette tape broadcasts calls of secretive bird species at 100-metre radius semi-circular stations within the volunteer's route to elicit those species. The volunteers record bird species heard and seen during two annual visits of 10 minutes.

Conservation Blueprints – Ecoregional Planning

The Nature Conservancy of Canada, in collaboration with the Ontario Ministry of Natural Resources (MNR) and The Nature Conservancy (United States) is establishing a conservation blueprint for the Great Lakes ecoregion. A conservation blueprint is a portrait of dynamic databases. It identifies and documents a portfolio of sites which, if conserved, will secure the long-term survival of viable native species and community types of the region. It is an adaptive process, driven by changes in resource information, diversity losses and conservation achievements. The project's main objectives are to rank the area's biodiversity conservation targets in both aquatic and terrestrial ecosystems and map the distribution of this biodiversity, including identifying areas of special significance.

This initiative will bring together a wealth of geographically referenced conservation data for the entire Great Lakes basin, including wetlands. The MNR's Ontario Natural Heritage Information Centre and other partners will share data and expertise to decide jointly which sites should be secured and the amount of land needed to ensure the viability of native species. Workshops and meetings to identify and refine conservation targets and objectives and assess the quality of potential sites for biodiversity conservation occurred throughout 2002. The final identification of sites will reflect biological, chemical and physical integrity of the region as well as societal, political and practical considerations.

Products from the Blueprint project will include:

- a set of maps showing key conservation locales;
- automated Geographic Information Systems (GIS) routines for delineating habitat features;
- associated databases containing landscape and ecoregion level data; and,
- a website providing Internet access to the GIS routines, maps and databases.

Funding for the terrestrial component has been provided by the Richard Ivey Foundation, while the Mott Foundation is contributing towards the aquatic component.

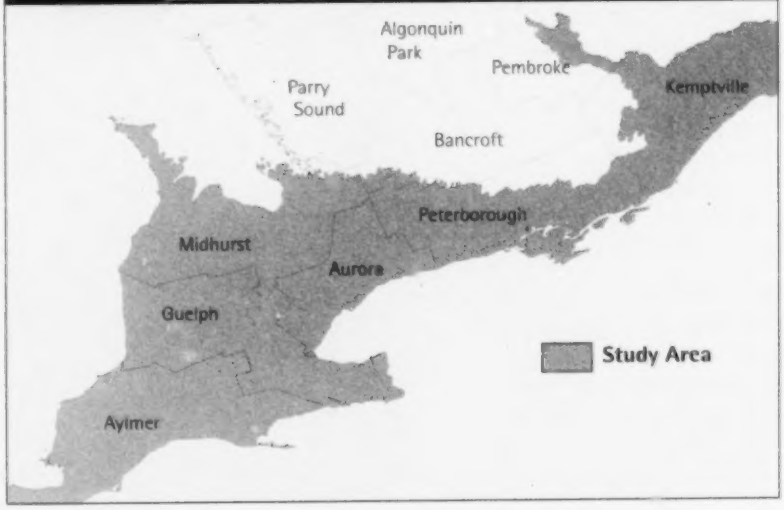
For more information, contact the Nature Conservancy of Canada (see Contacts) or visit www.natureconservancy.ca.

Mapping and Tracking Landscapes – Southern Ontario Land Resource Information System

The Southern Ontario Land Resource Information System (SOLRIS) is a mapping program designed to accurately measure the characteristics and extent of southern Ontario's natural resources. This natural resource and land use database covers the area of Ontario south of the Canadian Shield. SOLRIS is also a monitoring system that will be used to track changes to the natural, rural and urban landscapes.

SOLRIS is based on advanced remote sensing and GIS techniques, integrating MNR's Natural Resources Values Information System (NRVIS) base resource data with recent high resolution and archived satellite imagery. This approach will create an inventory based on MNR's Ecological Land Classification (ELC).

SOLRIS (Southern Ontario Land Resource Information System) Study Area.



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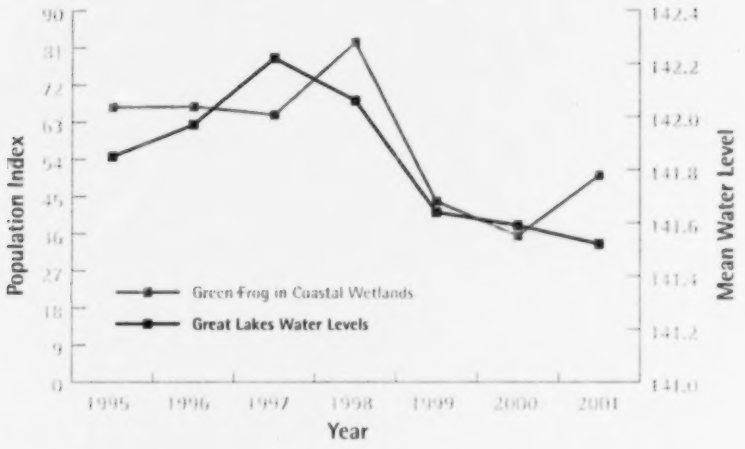

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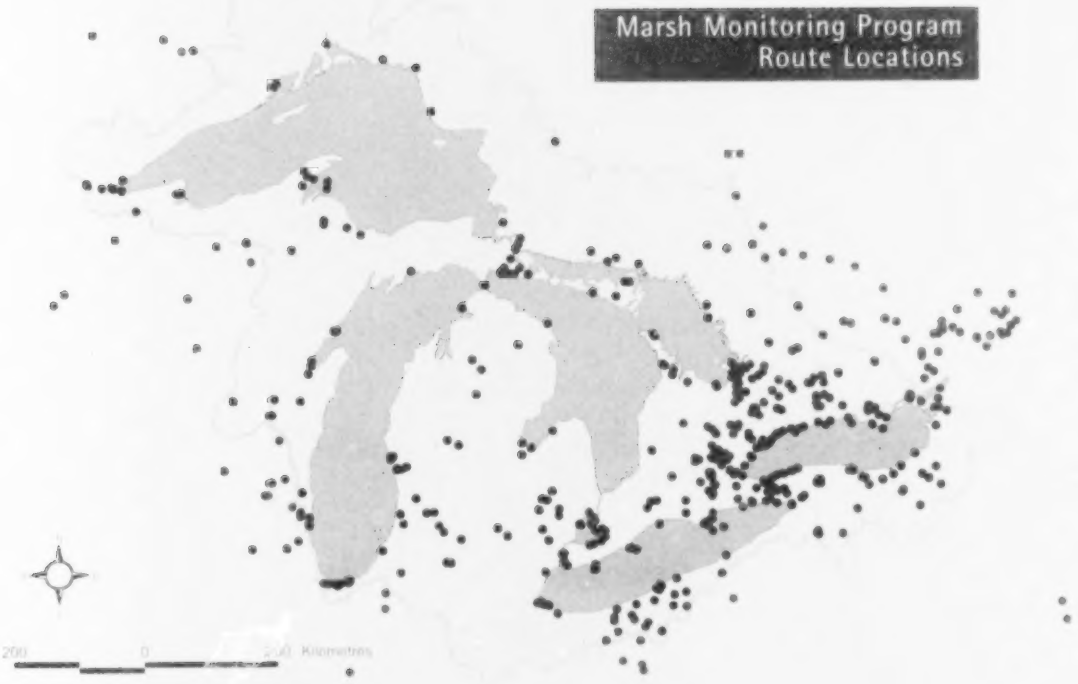

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SOLRIS (Southern Ontario Land Resource Information System) Study Area.

Benefits of the SOLRIS project include:

- the establishment of a public sector-wide coordination and standardization of a land resource information base serving broad information needs;
- creation of a land information framework that promotes an ecological approach to land information management;
- establishment of a base layer of resource information from which all future changes can be accurately recorded; and,
- the promotion, acceptance and adherence to the ELC through the set up of the framework for future eco-element and vegetation type mapping requirements.

A multi-divisional MNR team is currently finalizing and field testing the SOLRIS methodology. This phase of the project is co-funded through a partnership between MNR and Ducks Unlimited Canada. The team is working towards a goal of SOLRIS implementation across southern Ontario in 2003-2004.

For more information contact the Ontario Ministry of Natural Resources (see Contacts).

Understanding the Relationships between Wetland Communities and Lake Ontario-St. Lawrence River Water Levels and Flows

Water level fluctuations are a natural phenomenon in the Great Lakes due to natural climatic variability. Wetland plant communities, which provide habitat for a multitude of invertebrates, amphibians, reptiles, fish, birds, and mammals, have evolved to adapt to, and in fact depend on, water level changes.

Since 1960, water levels and flows of Lake Ontario and the St. Lawrence River have been regulated at the Moses-Saunders Dam at Cornwall. In the winter of 2000, the International Joint Commission (IJC) launched a five-year binational study to review the current criteria in the Orders of Approval for regulation of Lake Ontario-St. Lawrence River levels and flows. The Plan of Study has the specific objectives of considering, developing, evaluating and recommending updates and changes to the 1956 criteria currently in use for Lake Ontario-St. Lawrence River regulation. These study objectives are being accomplished through assessment of how water level fluctuations affect interests within the basin.

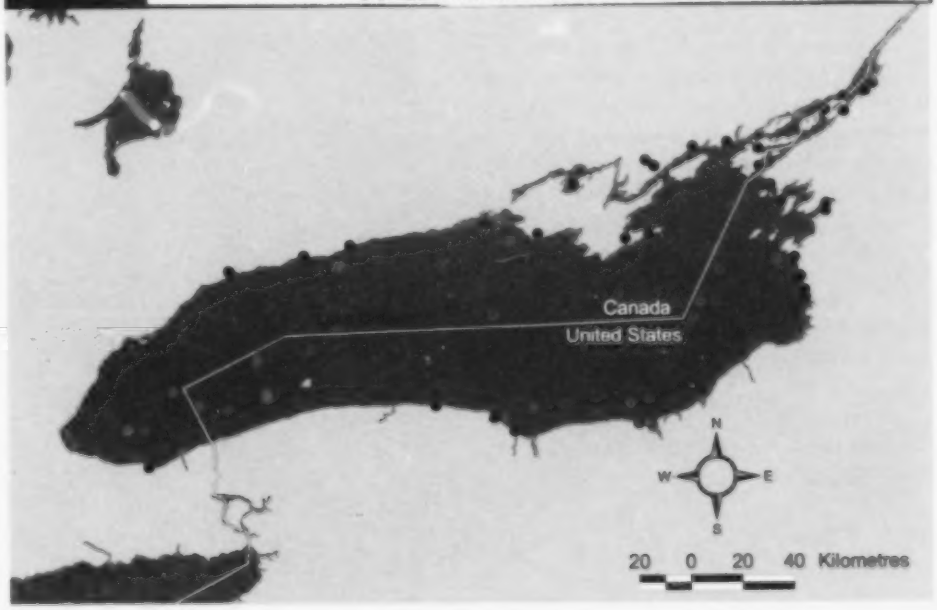
Six interests have been identified: shoreline property, commercial navigation, hydroelectric power generation, recreational boating, domestic water use, and environment. Working groups have been established to complete each assessment. Through the environment working group, the IJC study will improve the understanding of past water regulation impacts on coastal wetlands and identify relationships among water levels, coastal wetlands and wetland-dependent flora and fauna within Lake Ontario and the St. Lawrence River.

Wetland researchers from the U.S. and Canada are conducting a joint study to evaluate the effects of regulation by digitally mapping changes in wetland vegetation using aerial photographs of selected sites across a span of years from pre-regulation to the present. A computer model has been developed that will use vegetation data, topographic/bathymetric maps of the wetlands, and projected water-levels that would result from proposed new regulation plans to predict the relative area of wetland that will be in each vegetation community type under each new plan. The predictions will be assessed against one another for each of the four wetland geomorphic types and will also be used by researchers studying amphibians, fish, birds, and muskrats to evaluate potential changes in habitat availability.

For Lake Ontario, 16 sites in the U.S. and 16 sites in Canada were split evenly by geomorphic type: open embayment, protected embayment, barrier-beach, and drowned river mouth. The sites extend from the west end of the lake to the upper portion of the St. Lawrence River at the Moses-Saunders Dam at Cornwall. Results will be integrated with those emerging from a comparable study on the lower St. Lawrence River.

For more information, visit www.losl.org

Binational wetland study sites for the IJC Lake Ontario – St. Lawrence Water Levels and Flow Study.



Fish and Wildlife Health Effects and Exposure

Environment Canada recently initiated a program to assess fish and wildlife health effects in Canadian Great Lakes Areas of Concern (AOCs). The goal of the project is to determine if there are health effects in fish and wildlife, similar to those observed by Health Canada in the human population, that can be related to contaminants in the aquatic environment. Phase One of the project began in the lower Great Lakes in 2001 and will be completed by 2005. AOCs in the upper lakes will be considered on completion of Phase One.

Monitoring focuses on reproductive health and developmental effects, exposure to estrogen-disrupting substances, endocrine function, and immune function. In addition to components involving fish and chemical exposure, two wetland-dependent species (Snapping Turtle and Mink) are included in the study. Snapping Turtle data will also be used to support one of the SOLEC coastal wetlands indicators – contaminants in Snapping Turtles.

For SOLEC 2002, preliminary data on Snapping Turtles were reported for three AOCs (Wheatley Harbour, St. Clair River and the Detroit River) and compared to two reference sites. Some trends observed include:

- clutch size (the number of eggs laid by a female) tended to be smallest at the St. Clair River AOC and largest near Wheatley Harbour;
- despite large clutches, hatching success was very poor (12 percent) near the Wheatley AOC and lower at the St. Clair River AOC relative to the reference sites;
- 15 percent of adult male turtles from the Wheatley Harbour AOC showed effects of being exposed to estrogenic-mimicking contaminants, having a protein in their blood that normally only appears in females; and,
- males from the Wheatley Harbour AOC had shorter penises relative to their body length. This is similar to a finding in alligators inhabiting contaminated sites in Florida.

In 2003, the study will begin similar monitoring in selected AOCs around Lake Ontario.

For more information, contact Environment Canada, Burlington (see Contacts).

The District of Muskoka Mapping Project: Developing Mapping and Evaluation Methods to Help Resource Managers Lead Wetland Conservation in Ontario

The purpose of this project is to apply recently available, high-resolution remote sensing technologies to improve wetlands mapping and information for input to forest management and municipal planning in the District Municipality of Muskoka (DMM). This project is expected to encourage and support conservation and management of wetlands by municipal planners and forest managers.

Partnerships have been established with many members of the forest industry, and a strong partnership has been developed between Ducks Unlimited Canada and the District Municipality of Muskoka (DMM). Others who are involved in this project include MNR's Provincial Geomatics Service Centre (PGSC), MNR Bracebridge District, Canadian Wildlife Service, Nature Conservancy of Canada and Parry Sound-Muskoka Stewardship Network.

The six project objectives are:

1. to develop a method that uses remote sensing (image analysis/interpretation) and ancillary GIS information to accurately map all wetland types in forested Shield landscapes;
2. to develop a combined GIS and remote sensing application based on the Rapid Wetland Evaluation Model developed by J.C. Davies and others in 1996, that produces a total score for each wetland, based on the MNR's Northern Ontario Wetland Evaluation System, thereby providing a relative indication of the value of any particular wetland;
3. to transfer the mapping and evaluation technology to the eight Sustainable Forest Licensees in the Great Lakes St. Lawrence forested Shield (i.e., Westwind Forest Stewardship Inc., Vermillion Forest Management Company Ltd., Nipissing Forest Resource Management Inc., Algonquin Forest Authority, Ottawa Valley Forest Inc., Bancroft Minden Forest Management Inc., and Mazinaw-Lanark Forest Inc.);

Binational wetland study sites for the IJC Lake Ontario – St. Lawrence Water Levels and Flow Study.

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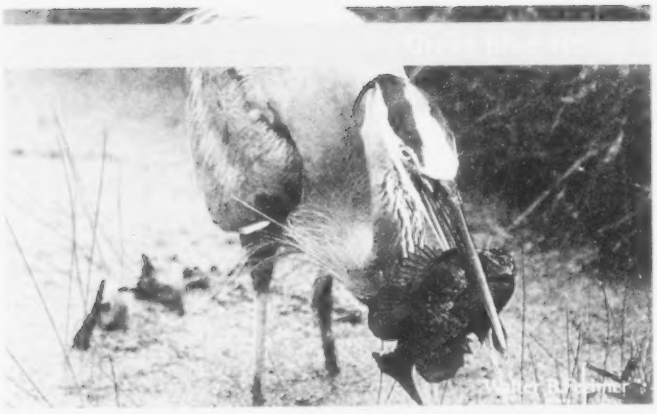

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4. to transfer the wetland mapping and evaluation technology to other municipalities in the Great Lakes-St. Lawrence forested Shield (e.g., Dysart, Minden Hills, District of Parry Sound, City of North Bay, City of Sault Ste. Marie, and numerous others);

5. to transfer the wetland mapping and evaluation information for the DMM to the municipality so that it can be used to provide input to the upcoming five-year review of the municipality's Official Plan; and,

6. to implement a landowner contact program in the DMM to provide conservation and management information to private landowners of key wetlands.

The DMM is providing a pilot area for the development of the wetland mapping and evaluation methodology. However, the methods developed will be applicable throughout Ontario's forested Canadian Shield landscape. Ducks Unlimited is responsible for financial and administrative management of this project. Preparation of the final report is scheduled for completion between January and March 2004.

For more information contact the Ontario Ministry of Natural Resources (see Contacts).

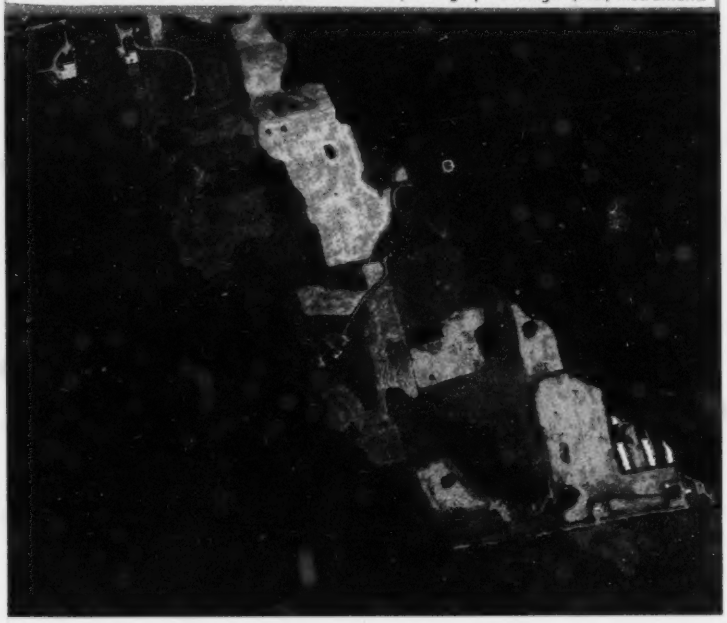
Emerging Technologies Assist in Ecosystem Mapping

Since 1999, the University of Waterloo has conducted research on the use of high-spatial and high-spectral resolution remote sensing data for detailed wetland mapping and monitoring in southern Ontario. One focus is on assessing the capabilities of high-resolution remote sensing instruments to provide detailed information on wetland vegetation and adjacent land-use/land-cover types.

Study sites from inland wetland complexes in South Dumfries Township and a shoreline wetland site at Long Point were selected. Compact Airborne Spectrographic Imager *(casi)* data were acquired on three days in the summer of 2000 in spatial- and spectral-mode, with spatial resolutions of one metre and four metres, respectively. Detailed analyses of the data were then completed.

Results show that high-resolution data can provide detailed and accurate information for mapping and monitoring wetland ecosystems. For example, a map of 11 land-use/land-cover classes was produced after applying a classification algorithm to the spatial-mode *casi* data. Map accuracy was 90 percent. Once similar classes were merged (i.e., the grassland and hay class), map accuracy increased to 96 percent. Although the spectral-mode data were expected to produce the best results, the spatial-mode data provided the most accurate identification. Therefore, spatial resolution may be as important as spectral resolution in classifying data from these types of wetland environments.

False colour image acquired on June 10, 2000 over South Dumfries Township. This image was acquired by the Compact Airborne Spectrographic Imager (casi) instrument.



Application of this technology on a larger scale could provide up-to-date maps indicating the type, extent, and distribution of wetlands in this region of Ontario, based on research conducted in South Dumfries Township and at Long Point. Currently, the University is working with wetland scientists and managers to determine how to make the best use of the results to improve management of wetland ecosystems throughout Ontario and Canada. It is anticipated that the final results of this study will be available in Spring 2003.

Funding for this research was awarded through the Centre for Research in Earth and Space Technology (CRESTech). In-kind support for this research has been provided by Ducks Unlimited Canada; the Grand River Conservation Authority; the Adaptation and Impacts Research Group, Environment Canada; and the Canadian Wildlife Service, Environment Canada.

For more information, contact the Department of Geography at the University of Waterloo (see Contacts).

Regionally Integrated Coastal Wetland Monitoring

Despite their deteriorated condition, Durham Region coastal wetlands are among the best examples of Lake Ontario coastal wetland communities. Management of coastal wetlands in Durham Region is a complex challenge, incorporating maintenance of key wetland functions and values, with managing the stresses of rapidly urbanizing watersheds and the dynamic hydrology of Lake Ontario. The Durham Region Coastal Wetlands Monitoring Project aims to understand wetland dynamics and distinguish among lake effects, regional trends and local site specific changes, and integrate regional monitoring activities. Project partners benefit from shared resources and information.

The Durham Region Coastal Wetland Monitoring Project Methodology Handbook is a draft document that seeks to provide standardized protocols to improve the effectiveness and efficiency of coastal wetland health assessment. The success of the 2002 inaugural field season may result in changes to monitoring protocol. The following monitoring activities were carried out at 15 sites to test the methodologies described in the handbook:

- identification of wetland and upland vegetation community location, distribution and composition;
- characterization of land use and land cover within watersheds;
- fish community health assessment through the calculation of an Index of Biotic Integrity;
- measurement of turbidity levels and sediment quality;
- water level monitoring to assess the impact on vegetation communities; and,
- assessment of bird and amphibian species richness using the Marsh Monitoring Program protocol, with emphasis on population trends in key species such as the Least Bittern and Black Tern.

Study Area for the Durham Region Coastal Wetland Monitoring Project

1. Rouge River Marsh
2. Frenchman's Bay
3. Pickering Nuclear Marsh
4. Duffins Creek Marsh
5. Carruthers Creek Wetland Complex
6. Cranberry Marsh
7. Lynde Creek Marsh
8. Corbett Creekmouth Marsh
9. Pumphouse Marsh
10. Oshawa Second Marsh
11. McLaughlin Bay Marsh
12. Westside Beach Marsh
13. Port Darlington Marsh
14. Wilmot Rivermouth Wetland
15. Port Newcastle Wetland

Looking ahead

A second year of field work is required before enough data are collected to report on the status of the Durham Region coastal wetlands. Following a report, recommendations will be made to implement watershed/wetland restoration programs where necessary. Long-term monitoring will reveal the effectiveness of the restoration programs while continuing to identify impacts.

Additional monitoring activities will be included in the project as technologies and/or methodologies become available. These activities include:

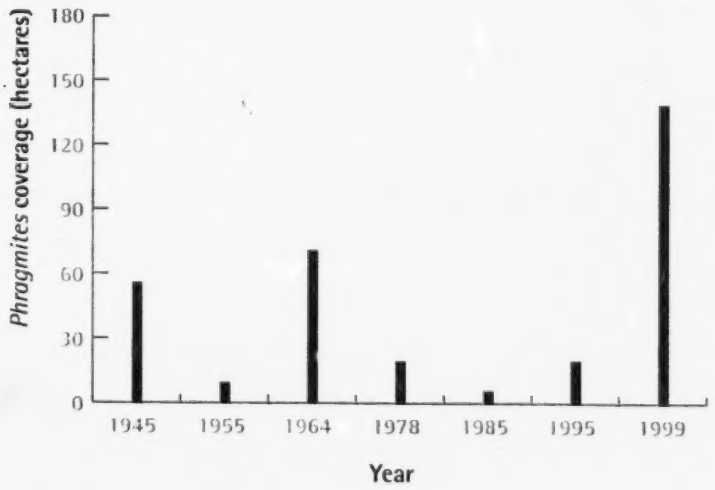
- aquatic invertebrate community assessments;
- bathymetry monitoring;
- determining the extent of public ownership of land within the watershed; and,
- measurement of sediment and nutrient loads entering the wetlands.

The Durham project will provide a multi-partner implementation model for use in other regions of the Great Lakes and contribute to the Lake Ontario Lakewide Management Plan. Compatibility of these initiatives will allow comparison and integration of the Durham Region coastal wetlands into a larger Great Lakes monitoring network.

For more information, contact the Central Lake Ontario Conservation Authority (see Contacts).

Invasive Vegetation: *Phragmites australis*

Phragmites australis (Common Reed) is a highly invasive plant that thrives in wetlands, particularly areas that have been altered or disturbed. Once established, *Phragmites* can spread over adjacent areas at rates of up to 10 metres per year. Its recent, rapid expansion has caused concern among resource managers who believe that it degrades waterfowl habitat and reduces biodiversity in wetlands. Informed management decisions must incorporate an understanding of historical changes in distribution and abundance of the invasive species, along with an identification of displaced communities throughout the lower Great Lakes.



In response to the rapid expansion of *Phragmites* at Long Point, Ontario, a study of historical distribution and abundance of the species was initiated by the Long Point Waterfowl and Wetlands Research Fund (LPWWRF) in 1999. This is a collaborative research project with LPWWRF, Environment Canada (Adaptation and Impacts Research Group, and Canadian Wildlife Service) and the University of Waterloo.

Long Point's wetland plant communities were mapped by interpreting aerial photographs from seven years between 1945 and 1999. The aerial extent of *Phragmites* stands were measured by digitizing vegetation boundaries, ground-truthing, and analyzing the data using GIS, while a growth formula was used to document the rate of increase of *Phragmites* over time. Methods emulated those used by Environment Canada's Wetland Trends Through Time database.

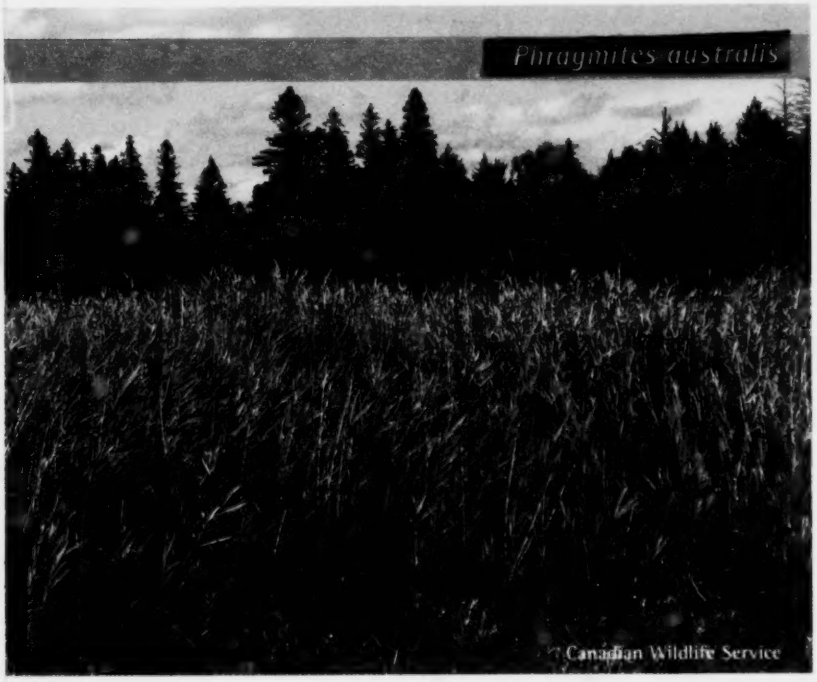
Aerial extent of *Phragmites* varied over the time period (Figure 2), with an exponential increase occurring between 1995 and 1999 when *Phragmites* replaced marsh meadow (33 percent), cattail (32 percent), other mixed emergents (8 percent), sedge/grass hummock (10 percent), and open water (5.5 percent).

Evidence suggests that *Phragmites* abundance is negatively correlated with Lake Erie water depth ($r=0.347$, $P=0.164$). It might also be positively correlated with ambient temperature ($r=0.279$, $P=0.223$). Further, in recent years an aggressive non-native genotype of *Phragmites* has been identified at Long Point. This species introduction, and the apparent relationship between *Phragmites* abundance and both temperature and water depth, have potential links to climate change. Results suggest that, if global warming predictions are realized, *Phragmites* will continue to rapidly expand on the lower Great Lakes.

For more information, contact the Long Point Waterfowl and Wetlands Research Fund (see Contacts).

Invasive Vegetation: *Phragmites australis*

Phragmites australis (Common Reed) is a highly invasive plant that thrives in wetlands, particularly areas that have been altered or disturbed. Once established, *Phragmites* can spread over adjacent areas at rates of up to 10 metres per year. Its recent, rapid expansion has caused concern among resource managers who believe that it degrades waterfowl habitat and reduces biodiversity in wetlands. Informed management decisions must incorporate an understanding of historical changes in distribution and abundance of the invasive species, along with an identification of displaced communities throughout the lower Great Lakes.



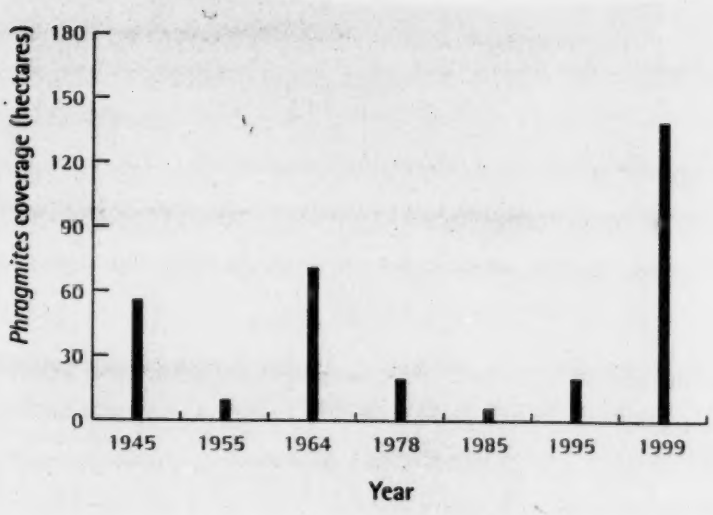


Figure 2. Change in the distribution of Phragmites at Long Point based on seven discrete years of data from aerial photographs taken between 1945 and 1999.

In response to the rapid expansion of *Phragmites* at Long Point, Ontario, a study of historical distribution and abundance of the species was initiated by the Long Point Waterfowl and Wetlands Research Fund (LPWWRF) in 1999. This is a collaborative research project with LPWWRF, Environment Canada (Adaptation and Impacts Research Group, and Canadian Wildlife Service) and the University of Waterloo.

Long Point's wetland plant communities were mapped by interpreting aerial photographs from seven years between 1945 and 1999. The aerial extent of *Phragmites* stands were measured by digitizing vegetation boundaries, ground-truthing, and analyzing the data using GIS, while a growth formula was used to document the rate of increase of *Phragmites* over time. Methods emulated those used by Environment Canada's Wetland Trends Through Time database.

Aerial extent of *Phragmites* varied over the time period (Figure 2), with an exponential increase occurring between 1995 and 1999 when *Phragmites* replaced marsh meadow (33 percent), cattail (32 percent), other mixed emergents (8 percent), sedge/grass hummock (10 percent), and open water (5.5 percent).

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For more information, contact the Long Point Waterfowl and Wetlands Research Fund (see Contacts).

Wildlife Habitat Effects

Given the documented expansion of *Phragmites* at Long Point in recent years, it is important to assess the suitability of this habitat for the species that use the area – a task undertaken by the University of Western Ontario. Bird surveys were conducted between May 2001 and July 2002 and pitfall traps were set in the summers of 2001 and 2002 to monitor amphibians and mammals. Species use of four habitats was investigated: *Phragmites australis*, cattail, marsh meadow (mainly sedges and rush), and mixed habitats.

Preliminary results suggest that *Phragmites* provides habitat for some bird species.

- Common Yellowthroat and Yellow Warbler were found nesting and demonstrated a strong preference for *Phragmites* (as illustrated through abundance values).
- *Phragmites* provides important roost cover and shelter in all seasons, most widely during the fall and winter. Large congregations of Red-winged Blackbirds, Common Grackles, Dark-Eyed Juncos and swallows were often observed roosting in the large stands.
- Waterbirds (bittern, waterfowl and rail) did not use *Phragmites* to the same extent as other habitats. However, some Mallard nests were discovered at the edge of *Phragmites*.

Data from the pitfall study show that *Phragmites* provides habitat for amphibian and mammalian species (higher species richness).

- More adult American Toads and Green Frogs were captured and marked in *Phragmites* than in either cattail or meadow habitats.
- Fowler's Toads were captured mainly in meadow habitats.
- Juvenile toads were found most commonly in both cattail and meadow habitats.
- Mammals were commonly associated with the denser cover of both *Phragmites* and cattail.

These data will be used with other information regarding stand size, water levels and other variables, in the creation of a model of *Phragmites* use by wildlife at Long Point.

For more information, contact the University of Western Ontario or the Long Point Waterfowl and Wetlands Research Fund (see Contacts).

Canadian Wildlife Service

Species at Risk in Wetlands

Species at risk were identified as an emerging issue in the previous GLWCAP Highlights Report and many projects are now underway in support of their protection and recovery. Several species that rely on wetlands for a significant portion of their life cycle are designated at risk by COSEWIC (Committee on the Status of Endangered Wildlife in Canada). The most common cause of decline and limiting factor for the majority of species at risk across Canada and Ontario is degradation and loss of habitat. This is particularly evident for species at risk in Great Lakes wetlands where, despite efforts to restore wetland habitat, wetland bird populations continue to decline.

Status reports are prepared for all species to be listed under COSEWIC as species at risk and include information on species distribution, biological requirements, life cycle, current population status, habitat and reasons for designation. Species Recovery Teams are then formed and Recovery Plans prepared to identify actions necessary to maintain or increase current populations and habitat and prevent further declines. Recovery Plans are either completed or in progress for many wetlands species, including the following updates on wetland birds.

- The Prothonotary Warbler was designated Special Concern in 1984. In 1996 the status was listed as Endangered. A subsequent review in 2000 confirmed the Endangered status. A frequent inhabitant of swamp forests, population declines have been attributed to nesting failure due to competition with house wrens, brood parasitism by Brown-headed Cowbirds, shortage of nesting cavities, destruction of breeding and wintering habitats, and drought in breeding habitat. A Recovery Team was established in 1997. Recovery actions include the development of a draft Recovery Plan, and a nest box program to increase nesting opportunities and reduce nest parasitism by cowbirds and mammalian predation.

- The King Rail was designated as Special Concern in 1985. In 1994 the status was reviewed and it was designated as Endangered. The status was reviewed in 2000 and Endangered status confirmed. The current Canadian population, estimated at 25 to 50 pairs, is found in wetlands in Ontario. In 1997, a Recovery Team was formed. Progress includes the development of a draft Recovery Plan, establishment of a King Rail survey protocol, and digital mapping of King Rail habitat.

- Since 2000, the status of Least Bittern populations in Canada has been reviewed and the designation was uplisted from Special Concern to Threatened (November 2001). This change was due to a very small, declining population that relies on high quality marsh habitats which are being lost and degraded across the species' range which includes Manitoba, Ontario, Quebec, and New Brunswick. A recovery team will be established in 2003.

- The Yellow Rail was designated by COSEWIC as Special Concern in 1999. After a COSEWIC review, this status was confirmed in 2001. Yellow Rails occur in Northwest Territories, British Columbia, Alberta, Saskatchewan, Manitoba, Ontario, Quebec, and New Brunswick.

- The Louisiana Waterthrush was designated Special Concern in 1991 and confirmed in 1996. Louisiana Waterthrush occurs in Ontario and Quebec.

For more information on species at risk visit www.cosewic.gc.ca or www.speciesatrisk.gc.ca.

Least Bittern

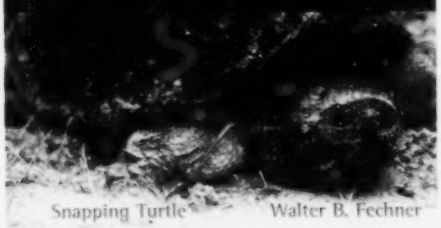
Walter B. Fechner

Species at Risk in Great Lakes Basin Wetlands

COSEWIC	ENDANGERED	THREATENED	SPECIAL CONCERN
BIRDS	Prothonotary Warbler King Rail	Least Bittern Anatum Peregrine Falcon	Louisiana Waterthrush Yellow Rail Red-shouldered Hawk
AMPHIBIANS	Northern Cricket Frog	Fowler's Toad	
REPTILES	Lake Erie Water Snake	Eastern Spiny Softshell Turtle Eastern Massasauga Rattlesnake Butler's Gartersnake Eastern Fox Snake Queen Snake Stinkpot	Northern Map Turtle Spotted Turtle
PLANTS	Horsetail Spike-rush Scarlet Ammannia Toothcup	American Water-willow Kentucky Coffee-tree	Swamp Rose-mallow
FISH	Aurora Trout Northern Madtom Pugnose Shiner	Black Redhorse Channel Darter Eastern Sand Darter Lake Chubsucker Lake Whitefish Spotted Gar	Bigmouth Buffalo Black Buffalo Blackstripe Topminnow Bridle Shiner Greenside Darter Northern Brook Lamprey Orangespotted Sunfish Pugnose Minnow Redside Dace River Redhorse Silver Chub Silver Shiner Spotted Sucker Warmouth

STRATEGY 3

Secure Wetlands



Snapping Turtle — Walter B. Fechner

A variety of methods can be used to secure wetlands. In most cases, the larger the financial investment in the site, the greater the protection received.

GLWCAP and EHJV partners have acquired more than 5,700 hectares of wetland and adjacent upland since 1994.

The hectares reported in the table (see next page) were protected through high security techniques (acquisition), through the cooperation of a number of agencies and organizations. Securing wetlands remains an opportunistic process, particularly for acquisition. It is difficult to predict where and when Great Lakes wetlands will become available for purchase, or where and when landowners will be open to other protection options. Funds for acquisition are often difficult for land-conservation organizations to raise until the target properties have been identified.

Other (non-acquisition) securement methods are important to protecting habitats and biodiversity, as are the stewardship efforts of individual landowners. Thousands of wetlands are owned, managed and cared for by individual landowners. Efforts to encourage private stewardship can protect more wetlands than acquisition, through formal or legally-binding (e.g., conservation easements) and informal (e.g., handshake or verbal agreements) arrangements. Landowner contact programs which encourage stewardship by private owners, often in a rural or agricultural setting, are a key mechanism.

Wetlands, NAWMP and the EHJV

The Eastern Habitat Joint Venture (EHJV) is one of 14 habitat "joint ventures" established across the continent to ensure the implementation of the North American Waterfowl Management Plan (NAWMP). In Ontario, the EHJV is a partnership of the federal government, the provincial government, Ducks Unlimited Canada, the Nature Conservancy of Canada, and Wildlife Habitat Canada.

EHJV Partners in NAWMP

- Ontario Ministry of Natural Resources
- Environment Canada - Canadian Wildlife Service
- Ducks Unlimited Canada
- Wildlife Habitat Canada
- The Nature Conservancy of Canada
- Ontario Ministry of Agriculture and Food

Programs are applied on a broad scale to influence land use policies and promote ecologically sound and sustainable land use practices. Intensive programs are tailored to secure, create, restore, or rehabilitate balanced habitat conditions for waterfowl and other wetland wildlife. Between 1986 and 2001, EHJV partners have been successful in securing over 181,000 hectares of valuable habitat in Ontario alone, and over 306,000 hectares throughout the entire EHJV area (Ontario, Quebec, New Brunswick, Nova Scotia, Prince Edward Island, Newfoundland).

Neighbours in Waterfowl Conservation

The North American Wetlands Conservation Act (NAWCA) was passed by the U.S. Congress in 1989 to aid in the conservation of wetland ecosystems in Canada, the United States and Mexico, and to provide a mechanism to support NAWMP objectives for waterfowl and other wetland-related migratory species.

Funds generated under the Act must be used for wetland conservation projects – essentially the securement, restoration, enhancement and/or management of wetland ecosystems. Act funds cannot be used for research, policy or communications activities. The Act specifies that partnerships are a necessary and valuable mechanism for wetland conservation. In Canada, the partnerships that access NAWCA funding are Habitat Joint Ventures, including the EHJV.

Since the passage of the NAWCA, Canadian partners have received over $180 million Cdn from the U.S. federal government. This amount has been matched by over $200 million of U.S. non-federal contributions, for a grand total of just under $400 million Cdn for wetland ecosystem and waterfowl conservation in Canada.

For more information on NAWMP, visit www.nawmp.ca; or on NAWCA, visit http://birdhabitat.fws.gov/NAWCA/act.htm. For more information on the Ontario EHJV, contact Environment Canada, Nepean (see Contacts).

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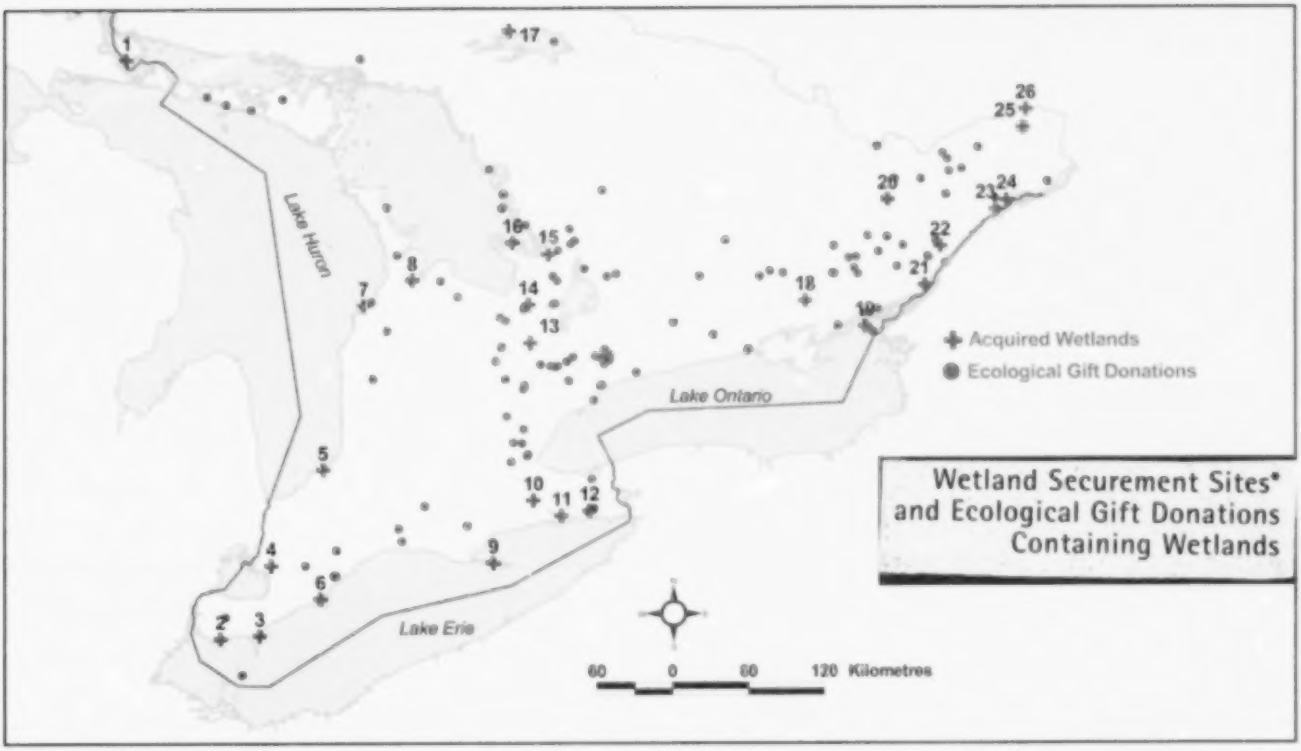


Wetland Securement Sites* and Ecological Gift Donations Containing Wetlands

Wetland Securement Projects (High Security)

WETLAND (WEST TO EAST)		HABITAT SECURED (ha)
1	Hay Marsh	123.0
2	Oxley Poison Sumach Swamp	18.0
3	Hillman Marsh	39.0
4	Pigeon Marsh	25.0
5	Port Franks Wetlands and Dunes	29.0
6	Rondeau Bay	7.5
7	McGregor Point	166.0
8	Long Swamp	21.0
9	Long Point Wetland Complex	27.0
10	North Cayuga Slough Forest	19.0
11	Dunnville Marsh	385.0
12	Wainfleet Bog	158.0
13	Alliston Basin Wetlands	67.0
14	Minesing Swamp	513.0
15	Matchedash Bay	76.0
16	Fairlain Lake Bog	71.0
17	Cache Bay	30.0
18	Westplain Mud Lake	842.0
19	Big Sandy Bay	58.0
20	Mississippi Lake NWA	35.0
21	LaRue Mills	7.0
22	Brockville Long Swamp Fen	117.0
23	Hoasic Creek (DuPont Provincial NR)	200.0
24	Riley Marsh	191.0
25	Alfred Bog	1,261.0
26	Atocas Bay	643.0
TOTAL AREA ACQUIRED		**5,730.5***
Wetland and associated upland area protected through Ecological Gifts Program donations		**3,160.0**

Note: These figures represent acquisitions between March 1994 and December 2002 and include uplands surrounding the secured wetlands. Uplands are critical to wetland function and provide habitat for a number of species which require both types of habitat in proximity. Securement of these sites was possible through cooperation of the partners of the Great Lakes Wetlands Conservation Action Plan (GLWCAP) and the Eastern Habitat Joint Venture (EHJV).

North American Bird Conservation Initiative

The North American Bird Conservation Initiative (NABCI) builds on the success of NAWMP and is a coordinated effort among Canada, the United States and Mexico with a goal to maintain the diversity and abundance of all North American birds. Launched in 1998, NABCI coordinates conservation efforts for shorebirds, landbirds, waterfowl and waterbirds. Many species within each of these four groups of birds rely on wetlands to fulfill a part of their life cycles.

The waterbird component of NABCI is implemented under the North American Waterbird Conservation Plan. In Canada, this is executed through the Canadian Waterbird Conservation Plan, also known as Wings Over Water. This Canadian initiative presents opportunities for conservation of inland marsh birds (bitterns, rails, etc.) and inland nesting colonial waterbirds (gulls, herons, etc.). In 2002, members of the Canadian Waterbird Technical Committees met to discuss conservation and monitoring priorities for seabirds and inland waterbirds. Members provided information on population size, distribution, trends and threats to determine the conservation status of all waterbirds that occur in Canada.

Alfred Bog – Moose in Southern Ontario

At 4,200 hectares, Alfred Bog is the largest and highest-quality bog remaining in southern Ontario. It is located between Ottawa and Montreal south of the Ottawa River and includes three types of wetlands: bog (83 percent), swamp (13 percent) and marsh (4 percent). The domed bog contains peat atop a layer of impermeable clay formed under marine conditions over 9,000 years ago. Peat depths range from a metre to over seven metres in the interior.

Alfred Bog is home to many nationally, provincially and regionally rare and endangered plants and animals. These include the Bog Elfin Butterfly, Fletcher's Dragonfly, Spotted Turtle, Red-shouldered Hawk, Golden Eagle, White Fringed Orchid, Atlantic Sedge and Rhodora. It is also home to Moose. The bog has been designated by the Ministry of Natural Resources as a Provincially Significant Wetland and an Area of Natural and Scientific Interest, and is also a candidate to be recognized under the Ramsar Convention on Wetlands of International Importance.

The main stresses on the hydrology and ecology of the bog are peat mining and direct drainage. In 1988, the Nature Conservancy of Canada (NCC) purchased approximately 1,600 hectares of Alfred Bog from private landowners to initiate the protection of this valuable wetland.

In October 2001, a further 1,261-hectare area of the wetland became available amid debate over its protection under the United Counties of Prescott and Russell's recently implemented Official Plan. The NCC with contributions from the provincial government, the private sector, and Environment Canada through the Eastern Habitat Joint Venture and the Habitat Stewardship Program, purchased this area in November 2002. Over 70 percent of the core bog area is now protected. Ontario Parks holds title to the purchased property and will manage the entire protected area as a nature reserve.

For more information about Alfred Bog, contact the Nature Conservancy of Canada (see Contacts) or visit www.natureconservancy.ca.

Moose

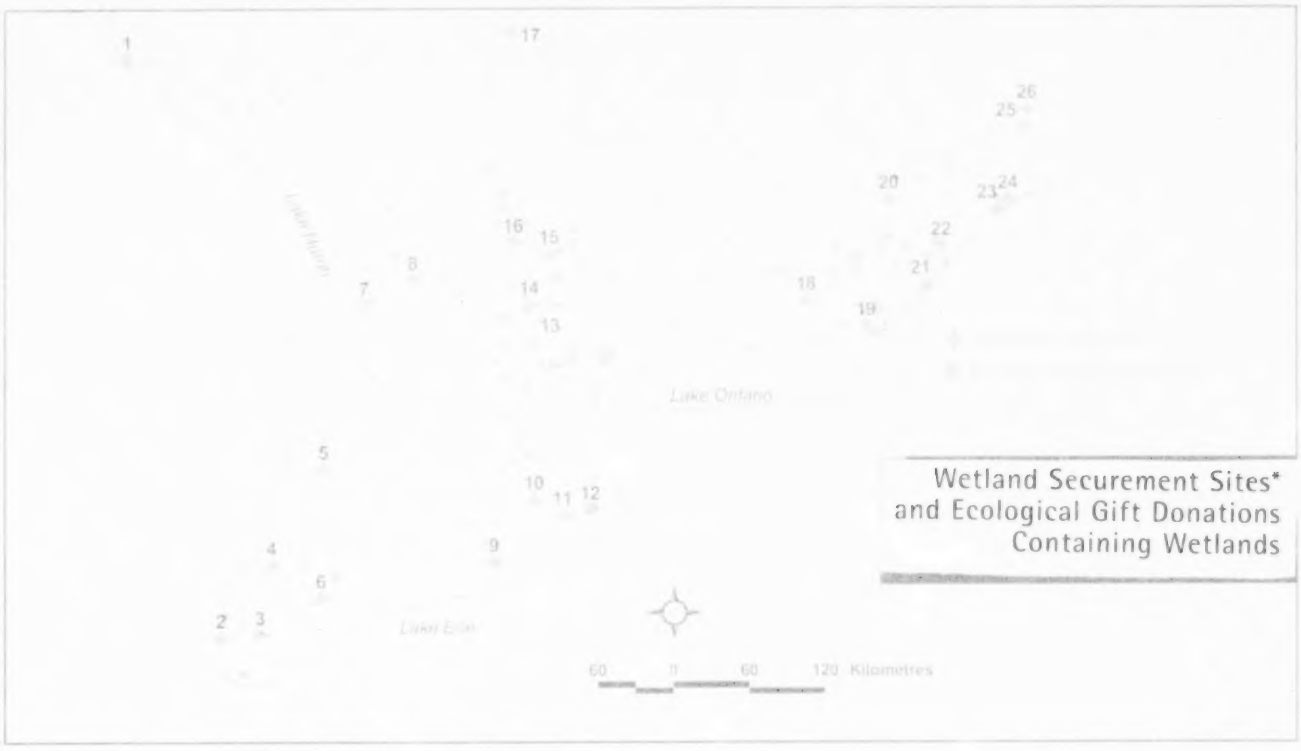
Glenn Barrett

Putting Landowners in the Driver's Seat: Ecogifts

Many private and corporate landowners have taken a valuable step to conserve wetlands by donating the land to government and non-government conservation organizations. Others have placed land use restrictions on the property title by donating conservation easements. The Ecological Gifts Program of Environment Canada recognizes such efforts – by certifying their land donations as ecological gifts, donors can receive enhanced income tax benefits.

In Ontario, the program has facilitated the donation of 105 gifts. Of these, 62 properties (3,160 hectares) worth an estimated $10.8 million are either partially or wholly wetland.

For more information, contact Environment Canada, Toronto (see Contacts), or visit the Ecological Gifts website at www.on.ec.gc.ca/ecogifts.



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1 Hay Marsh	123.0
2 Oxley Poison Sumach Swamp	16.0
3 Hillman Marsh	35.0
4 Pigeon Marsh	75.0
5 Port Franks Wetlands and Dunes	79.0
6 Rondeau Bay	7.5
7 McGregor Point	166.0
8 Long Swamp	121.0
9 Long Point Wetland Complex	77.0
10 North Cayuga Slough Forest	19.0
11 Dunnville Marsh	385.0
12 Wainfleet Bog	458.0
13 Alliston Basin Wetlands	67.0
14 Minesing Swamp	513.0
15 Matchedash Bay	76.0
16 Fairlain Lake Bog	71.0
17 Cache Bay	90.0
18 Westplain Mud Lake	842.0
19 Big Sandy Bay	56.0
20 Mississippi Lake NWA	35.0
21 LaRue Mills	7.0
22 Brockville Long Swamp Fen	117.0
23 Hoasic Creek (DuPont Provincial NR)	200.0
24 Riley Marsh	191.0
25 Alfred Bog	1,261.0
26 Atocas Bay	643.0
TOTAL AREA ACQUIRED	**6,794.5**
Wetland and associated upland area protected through Ecological Gifts Program donations	1,199.0

North American Bird Conservation Initiative

The North American Bird Conservation Initiative (NABCI) builds on the success of NAWMP and is a coordinated effort among Canada, the United States and Mexico with a goal to maintain the diversity and abundance of all North American birds. Launched in 1998, NABCI coordinates conservation efforts for shorebirds, landbirds, waterfowl and waterbirds. Many species within each of these four groups of birds rely on wetlands to fulfill a part of their life cycles.

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Glenn Barrett

Why do people donate?

Eric Dresser

It is a graceful arc of sand pushed by wind and water. At your back is an impenetrable thicket of alder and willow, occasionally relieved by pockets of deep black water. Look forward and you are blinded by the midday sun bouncing off Lake Ontario. You are standing on one of the better-preserved barrier beach and dune systems on the lake. The coastal wetland it protects remains intact, species-rich and complex.

Too often beaches such as this one on Wolfe Island disappear with intense recreational use or cottage development and accompanying wetlands are drained or degraded. In this case, a large portion of the wetland, beach, and dunes was purchased through a GLWCAP and EHJV partnership. One of the key areas of the wetland barrier beach system was secured through a donation by a private landowner to Ducks Unlimited Canada. The donation was made through Environment Canada's Ecological Gifts Program. By making an 'ecogift', the landowner ensured his land would be protected in perpetuity and became entitled to enhanced income tax benefits from the charitable donation receipt.

Many landowners have long realized the importance of wetlands and as a result, have specifically sought out wetland properties to purchase. At retirement age, many make an important decision to protect these areas forever by donating full or partial title (such as a conservation easement) to a conservation organization.

Wetlands have some strong supporters. Don and Ruth Bucknell, proud owners of Mud Lake wetland near Ingersoll, Ontario – donors of a conservation easement to the Nature Conservancy of Canada – sum up their values:

> *We have always been very concerned about the loss of wetland and woodland habitat. Forty years ago we purchased a marsh and pond known locally as Mud Lake. Over the years we have enjoyed this property immensely and have added to its value to wildlife with reforestation...Through an Easement Agreement with the Nature Conservancy of Canada it will continue to be preserved with absolutely no development of any kind allowed now or in the future regardless who owns the property...*

WHO GIVES AND WHY – DONOR SURVEY 2002

Preliminary results from a 2002 survey of donors of natural areas in Ontario, conducted by Environment Canada, confirm many expectations about who donates ecologically sensitive land, but also reveal some unanticipated findings.

Generally, donors are at a stage in life when they are faced with deciding how to look after their lands. Donors are often mature and financially secure, and have acquired enough resources to be able to donate what may be a major asset. However, preliminary data tell some interesting stories that go beyond this scenario.

- Landowners do not donate because of the new substantial income tax benefits that exist; rather, most gave due to a desire to protect their land or protect nature. The donation receipt and enhanced benefits then become a consideration or an enabler that financially allows the donation.
- 19 percent of donors are or were employed in the social sciences, education, government, service and religious fields versus seven percent of Ontarians on the whole. Nearly 90 percent of those donors were educators – teachers and professors.
- Very few gifts are donated to government agencies. There are two Ontario gifts to municipalities, with no direct federal or provincial gifts reported.
- Most gifts go to charitable land trusts or conservation authorities, with one national land trust organization (Nature Conservancy of Canada) receiving approximately half of the donations of natural areas in Ontario.
- 75 percent of all donations in Ontario are certified through Environment Canada's Ecological Gifts Program.
- Conservation easements, where the landowner retains title but donates certain rights to the property (such as development rights) to a conservation body, now account for half of all land donations in Ontario. This is significant given that legislation enabling conservation easements to be held by non-government bodies only came into effect in 1994.

Why do people donate?

Eric Dresser

It is a graceful arc of sand pushed by wind and water. At your back is an impenetrable thicket of alder and willow, occasionally relieved by pockets of deep black water. Look forward and you are blinded by the midday sun bouncing off Lake Ontario. You are standing on one of the better-preserved barrier beach and dune systems on the lake. The coastal wetland it protects remains intact, species-rich and complex.

Too often beaches such as this one on Wolfe Island disappear with intense recreational use or cottage development and accompanying wetlands are drained or degraded. In this case, a large portion of the wetland, beach, and dunes was purchased through a GLWCAP and EHJV partnership. One of the key areas of the wetland barrier beach system was secured through a donation by a private landowner to Ducks Unlimited Canada. The donation was made through Environment Canada's Ecological Gifts Program. By making an 'ecogift', the landowner ensured his land would be protected in perpetuity and became entitled to enhanced income tax benefits from the charitable donation receipt.

Many landowners have long realized the importance of wetlands and as a result, have specifically sought out wetland properties to purchase. At retirement age, many make an important decision to protect these areas forever by donating full or partial title (such as a conservation easement) to a conservation organization.

Wetlands have some strong supporters. Don and Ruth Bucknell, proud owners of Mud Lake wetland near Ingersoll, Ontario – donors of a conservation easement to the Nature Conservancy of Canada – sum up their values:

> *We have always been very concerned about the loss of wetland and woodland habitat. Forty years ago we purchased a marsh and pond known locally as Mud Lake. Over the years we have enjoyed this property immensely and have added to its value to wildlife with reforestation...Through an Easement Agreement with the Nature Conservancy of Canada it will continue to be preserved with absolutely no development of any kind allowed now or in the future regardless who owns the property...*

WHO GIVES AND WHY – DONOR SURVEY 2002

Preliminary results from a 2002 survey of donors of natural areas in Ontario, conducted by Environment Canada, confirm many expectations about who donates ecologically sensitive land, but also reveal some unanticipated findings.

Generally, donors are at a stage in life when they are faced with deciding how to look after their lands. Donors are often mature and financially secure, and have acquired enough resources to be able to donate what may be a major asset. However, preliminary data tell some interesting stories that go beyond this scenario.

- Landowners do not donate because of the new substantial income tax benefits that exist; rather, most gave due to a desire to protect their land or protect nature. The donation receipt and enhanced benefits then become a consideration or an enabler that financially allows the donation.
- 19 percent of donors are or were employed in the social sciences, education, government, service and religious fields versus seven percent of Ontarians on the whole. Nearly 90 percent of those donors were educators – teachers and professors.
- Very few gifts are donated to government agencies. There are two Ontario gifts to municipalities, with no direct federal or provincial gifts reported.
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Securing MacGregor Point for Future Generations

In the summer of 2001, GLWCAP partners and other interested local parties purchased portions of the provincially significant MacGregor Point Wetland Complex, including 800 metres of Lake Huron shoreline and 166 hectares of wetland and associated upland. The wetland complex is made up of 71 individual wetlands that include approximately 82 percent swamp, 14 percent fen, and four percent marsh. This area is one of the largest remaining undeveloped parcels along the southern Lake Huron shoreline.

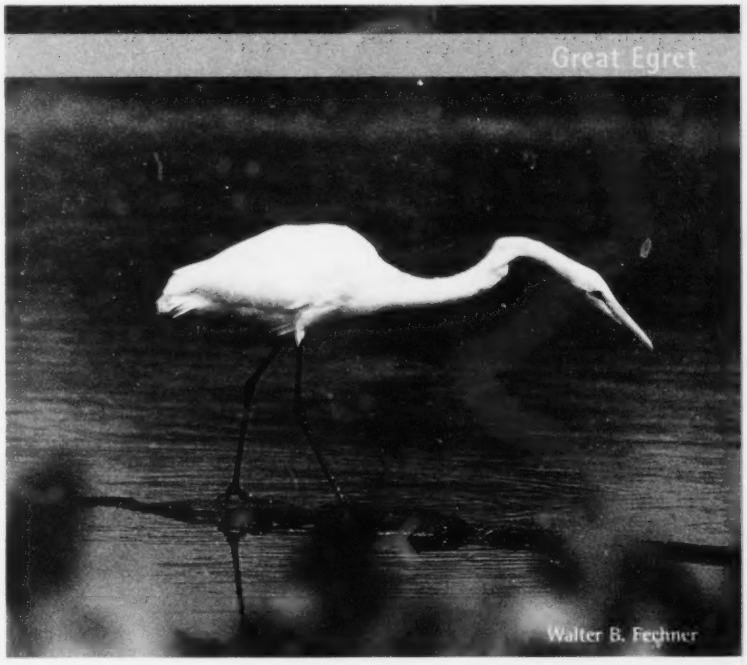
Located between Kincardine and Port Elgin and adjoining MacGregor Point Provincial Park, this area faces increased pressures from seasonal tourism and recreation. Despite the encroaching stresses, the shoreline is a major migration route for birds and boasts areas of sand dunes, mature cedar forests and wetlands.

Over 100 breeding bird species use this area, including the Great Egret, and also the Red-shouldered Hawk – a provincially vulnerable and national species of concern. The property is traditional roosting habitat for the provincially endangered Bald Eagle. It is an active feeding area for the Black-crowned Night-Heron and is home to 15 to 20 species of warblers. The area is used for feeding by Great Blue Herons and is home to the regionally significant Four-toed Salamander and Ring-necked Snake.

The Province of Ontario holds the title to the lands and Ontario Parks will manage the property. All partners recognized that securing the property is only the beginning of its long-term protection and that the natural ecosystems need protection and management. Habitat stewardship activities under consideration include:

- development and implementation of a management plan in conjunction with MacGregor Point Provincial Park to integrate complementary public access trail use, habitat restoration and interpretive viewpoints;
- collaboration with Friends of MacGregor Point Provincial Park to enhance public education in the expanded park;
- annual monitoring and evaluation of the site to contribute to the scientific knowledge of the species that it supports; and,
- signage to designate the property boundaries as per regulations.

For more information, visit www.ontarioparks.com.


Great Egret

Walter B. Fechner

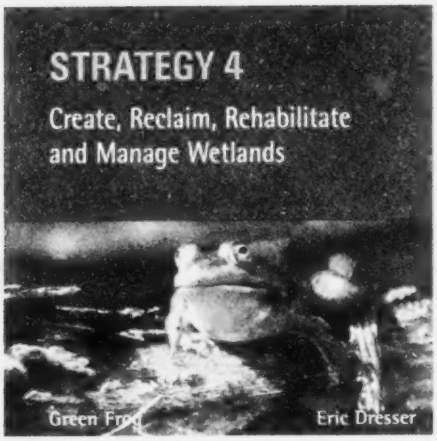
National Stewardship Conference 2003

A national gathering of Canada's stewardship and conservation organizations is being planned for July 3rd to 6th, 2003 at the University of Victoria, Victoria, B.C. The conference, The Leading Edge: Stewardship and Conservation in Canada, aims to bring conservationists, scientists and policy makers together from across Canada to advance the roles of stewardship and conservation.

Major themes are:

1. Strategic Directions;
2. Organizational Advancement;
3. Program Tools; and,
4. Legal, Economic and Policy Tools.

For more information, visit http://landtrustalliance.bc.ca/.



nowledge gained from new projects is shared through workshops, courses and manuals detailing the ins and outs of wetland creation and rehabilitation. A variety of government and non-government organizations have rehabilitated thousands of hectares of wetlands throughout the Great Lakes basin.

Successful rehabilitation depends on a great deal of conceptual planning, research and design flexibility. Wetlands are ever-changing systems that have adapted to local conditions over many decades. It is not only important that a rehabilitated wetland looks like a wetland, it must also function as one. There are many things to consider, including:

- the position of the wetland in the surrounding watershed;
- the presence and/or quality of a seedbank, or a natural source in the area that allows for recolonization of vegetation;
- the connection between the wetland and the water table;
- the underlying sediment; and,
- the need for water level variability to maintain new wetland vegetation communities.

Imagination becomes a key component of coastal wetland rehabilitation. Projects that show innovation often follow the principles of adaptive resource management (ARM) – a long-term technique based on a three-step process of taking action, monitoring results and adjusting the activity as necessary, or "learning from doing".

Definitions*

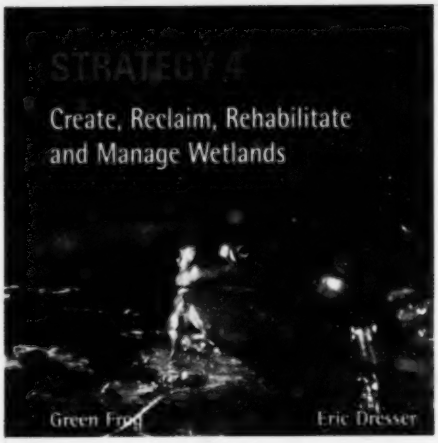
Rehabilitation– Improvement of the functions or values of a degraded wetland.

Restoration– Modification of the existing function and structure of a wetland's habitat so that it is similar to historical conditions.

Creation– The conversion of a persistent upland vegetation community or ephemeral shallow water area into a permanent wetland where no previous wetland existed.

Enhancement– An existing wetland where some planned activity by humans addresses the stresses or limitations to change one or more wetland functions or values.

* From Mansell, W.D., L. Christl, R. Maher, A. Norman, N. Patterson, and T. Whillans. 1998. *Temperate Wetlands Restoration Guidelines*. Ontario Ministry of Natural Resources, Environment Canada (Canadian Wildlife Service) and Ducks Unlimited Canada.



From planting projects in school classrooms to the use of natural live materials (bioengineering) where stone and concrete have been used traditionally, innovation is rampant in wetland rehabilitation.

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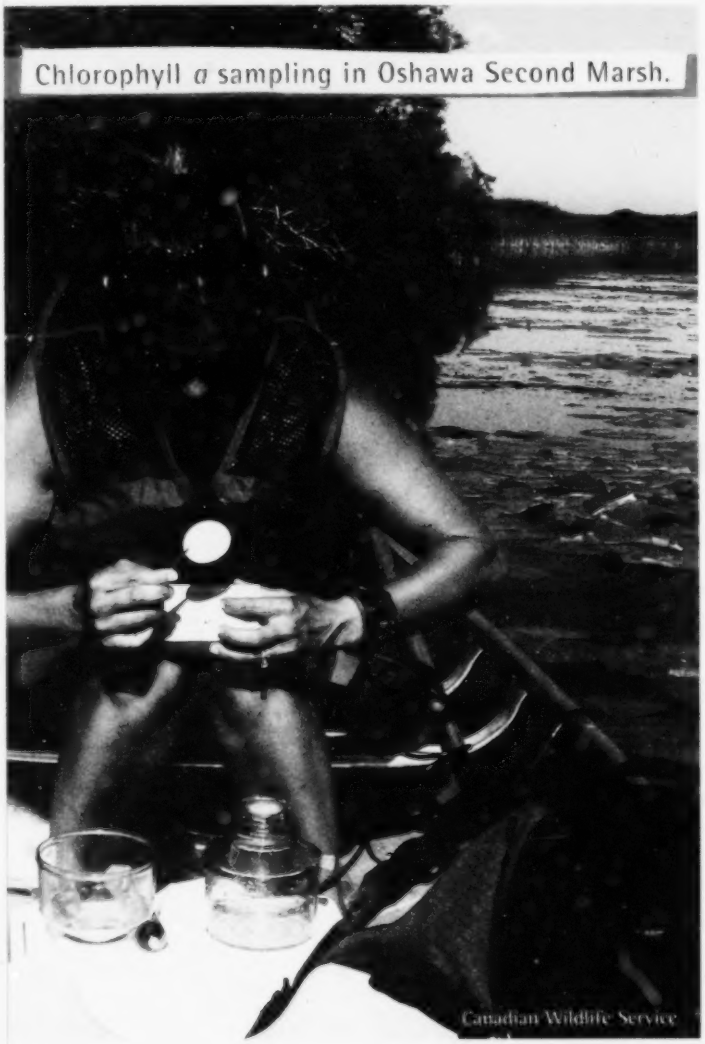
Canadian Wildlife Service

Oshawa Second Marsh – Update on the Second Phase

Located in the city of Oshawa, Ontario on the north shore of Lake Ontario, the 123-hectare Oshawa Second Marsh was once a healthy, well-vegetated barrier beach wetland, with a robust and diverse wildlife community.

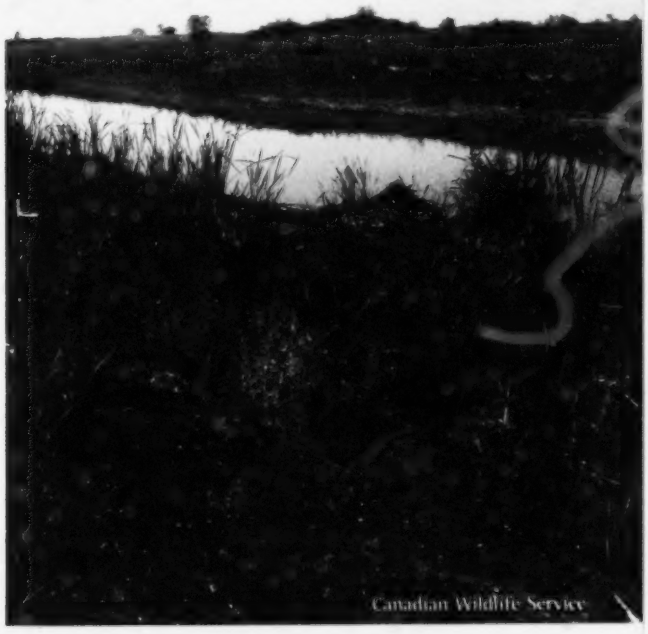
The story of the degradation and subsequent rehabilitation of Oshawa Second Marsh is long and ongoing. By the 1970s, a combination of upstream agriculture and urbanization resulting in sedimentation, alteration of the original wetland outlet, dredgeate dumping, carp arrival, and direct sewage discharges had seriously degraded the wetland. The final damaging events began in 1974, when the Oshawa Harbour Commission blocked the western outlet to the lake in order to raise water levels in the marsh, and allow heavy equipment to drill boreholes in preparation for harbour expansion. The following spring, large clumps of vegetation floated out to Lake Ontario through a new eastern outlet during record high water levels. This vegetation loss continued and, by the 1980s, vegetation was reduced to a narrow fringe of cattail.



Chlorophyll *a* sampling in Oshawa Second Marsh.

An adaptive resource management approach to rehabilitation was initially led by Environment Canada from 1994 to 1996. A key component of these efforts, local citizens' group the Second Marsh Defence Association (now Friends of Second Marsh) helped coordinate the wetland rehabilitation. The goal was to restore, as much as possible, the wetland community of plants and animals that had existed prior to 1970. Efforts included:

- reopening of the western channel through the barrier beach;
- creation of four deflector islands used to restore historic water flow patterns through deflection of water;
- attempts to exclude carp through various means including a link fence, log barriers and protective cells made of discarded Christmas trees;
- creation of 11 habitat islands, including one that unexpectedly fostered a Common Tern colony; and,
- construction of trails, bridges, viewing towers and boardwalks to encourage community appreciation for the marsh.

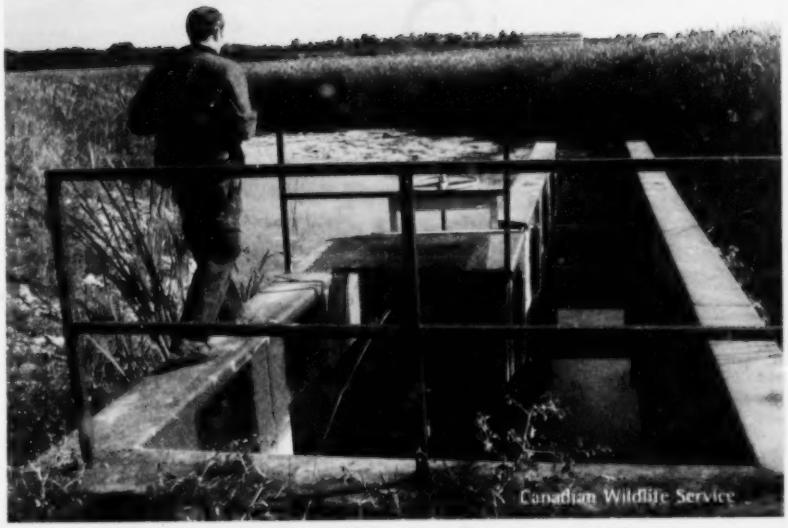


Earthen dyke (foreground) and Harmony Creek diversion.

Each effort had variable successess and challenges. Valuable lessons were learned about coastal wetland rehabilitation that could be applied elsewhere around the Great Lakes. However, it seemed that a more intensive approach might be required to restore the original functions and values of Second Marsh.

Ducks Unlimited Canada (DUC) is leading a second phase of marsh rehabilitation. In 2001, DUC began a project to divert the sediment-laden Harmony Creek around Second Marsh to the lake in order to alleviate further sedimentation of the wetland and decrease turbidity. Construction of an earthen dyke on the eastern bank of the channel in the winter of 2001/2002 used natural channel design for the lower portion of the creek below the historic inflow to the wetland. A fishway was also constructed through the dyke between the diverted Harmony Creek and the marsh, allowing marsh access for most fish but excluding large carp that destroy submerged vegetation and cause increased turbidity. In addition, marsh water levels will be managed to promote vegetation regeneration using a pump located at the barrier beach.

The fishway at Oshawa Second Marsh.



The rehabilitation efforts appear to be working already. In summer of 2002, turbidity levels dropped significantly in Second Marsh. The resulting improvement in water clarity has increased diversity and growth of submerged plants. Aquatic vegetation such as wild celery, that has not been seen in Oshawa Second Marsh in years was present and will be further encouraged by a draw down of the marsh in 2003.

While short-term efforts appear to be working, the long-term solution calls for better watershed management through a local landowner stewardship program and perhaps re-opening the marsh to the lake and creek once the vegetation has recovered.

The Second Marsh Project is an exceptional example of the effectiveness of partnerships and cooperative action. Key partners in the overall project include the City of Oshawa, Friends of Second Marsh, Environment Canada (Canadian Wildlife Service), Ducks Unlimited Canada, and numerous other partners that have supported the project over the years.

For more information, contact Ducks Unlimited Canada (see Contacts).

Ontario landowners conserving wetlands via the Wetland Habitat Fund

Ontario's wetlands are mostly privately owned, so their long-term health depends on the actions of thousands of private landowners. The Ontario Wetland Habitat Fund (WHF) was created in 1997 to support landowners who conserve, enhance or restore wetland habitat. The WHF provides technical advice and financial assistance (50 percent of costs up to $5,000) for projects that improve the ecological integrity of wetlands. Landowners develop wetland conservation plans, provide matching funds and resources, and carry out and maintain their projects. Landowners further demonstrate their commitment by signing 10-year conservation agreements.

WHF field staff help landowners devise practical, cost-effective habitat projects, including planting or protecting vegetated buffers around wetlands, creating small water control structures to restore wetland hydrology, restricting livestock access, creating alternative watering systems and rehabilitating degraded wetlands by managing vegetation or runoff.

As of fall 2002, more than 500 private landowners have received WHF support. The average project costs about $10,600, with WHF contributing about $3,200 to each. These projects have enhanced over 10,700 hectares of wetlands and 13,100 hectares of associated upland habitats throughout southern Ontario. About half of the projects are on farm properties; the remainder involve non-farm rural landowners.

The WHF is a core program of the Ontario Eastern Habitat Joint Venture. It is sponsored by Wildlife Habitat Canada, the Ontario Ministry of Natural Resources, Environment Canada, and the U.S. Fish and Wildlife Service, and is delivered with help from Conservation Ontario, Stewardship Ontario, the Landowner Resource Centre, and other conservation groups.

For more information, contact the Wetland Habitat Fund (see Contacts). To discuss project ideas or apply for funding, contact the WHF representative for your area, available from www.wetlandfund.com.

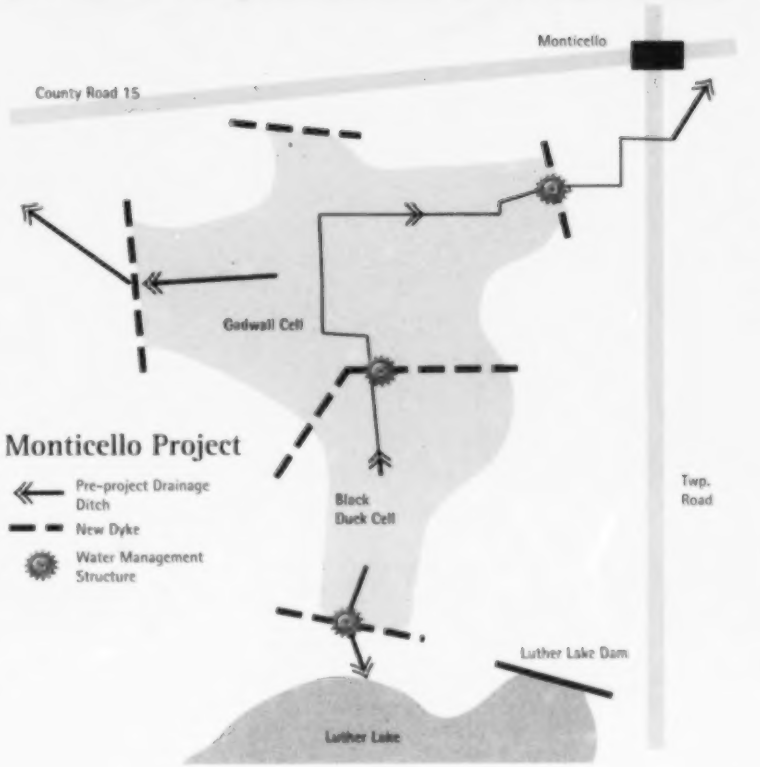
The Monticello Project: the State of Ohio joins Ontarians to Enhance Waterfowl Habitat

The Luther Marsh Wildlife Management Area (WMA) comprises 5,665 hectares of undulating landscape in Dufferin and Wellington Counties and forms a part of the headwaters of the Grand River, the largest drainage basin in southern Ontario. Luther Lake, a man-made reservoir initially flooded in 1952, is the most prominent feature in the area. Many wetlands were destroyed or seriously degraded by drainage activities conducted prior to the acquisition of the WMA lands by the Grand River Conservation Authority (GRCA) and the MNR.

In 1984, Ducks Unlimited Canada (DUC), under formal agreements with the GRCA and MNR, completed four "satellite" projects around Luther Lake to begin to put back lost wetlands. These projects, totalling 40 hectares, rehabilitate or enhance small historical wetlands degraded by earlier land drainage activities. Many other sites were also identified as potential restoration areas, including a relatively flat area of land southwest of the hamlet of Monticello, from which four small watersheds emanate. This site was drained by a series of ditches, but most of the land remained too wet to cultivate.

The goal of the Monticello project was to restore the wetland to create high quality habitat, including areas of open water and distinct vegetation communities, for a wide range of waterfowl and other wildlife species. Beginning in 2000, DUC built dykes and water control structures to limit surface drainage. A dyke now divides the area into two cells, each with a different type of wetland habitat – wet meadow and shrub swamp. Water control structures allow water transfer and independence between the cells. The cells became operational in summer 2001, and monitoring will occur on an annual basis to ensure the health of the wetland communities.

Schematic diagram of the Monticello Project showing dyke locations and newly restored wetland cells.



Even before restoration, the Gadwall Cell was characterized by sedges and grasses. This dominant wet meadow vegetation remains while restoration efforts have permitted the creation of pools of standing water in topographic depressions of the wetland. This cell provides highly attractive habitat for breeding Mallard, Blue-winged Teal and Green-winged Teal. Shoveller, Bufflehead, Pintail, Gadwall, Widgeon and others also find this habitat attractive during migration. Significant increases in Northern Leopard Frogs have been noted in the area, in addition to other amphibian and reptile usage. In the past few years, several Great Egrets have also been sighted.

The Black Duck Cell was created on land originally drained and cleared for agricultural use, but its chronically wet and untillable nature allowed the regeneration of wetland shrubs and trees; alder, willow and dogwood in the wetter elevations and poplar, elm, ash, wild apple and hawthorn around the perimeter on drier sites. Independent management of water levels between the two cells allows restoration of this shrub swamp through existing and establishing vegetation communities. The Black Duck cell is ideal habitat for Wood Ducks and Black Ducks, though many other types of waterfowl and other wildlife will also be attracted to this habitat.

A large block of land surrounding the wetland cells will be managed to augment wildlife habitat values. These uplands are dominated by land that is currently under cultivation; however, a small portion is characterized by sedges, grasses, shrubs and small trees. It is planned to let natural successional processes continue in some areas, and manage remaining areas as permanent grassland or modified agriculture.

Funding for the Monticello project has interesting origins. Bird banding at Luther Marsh WMA allowed Ohio waterfowl hunters to trace a large portion of hunted ducks back to Luther Marsh. This triggered interest from the State of Ohio to explore further breeding ground enhancement plans for Luther Marsh in order to increase the number of ducks migrating through Ohio. As a result, a partnership formed, comprised of the MNR, GRCA, DUC and the State of Ohio, which explored options and chose to fund the now completed Monticello project.

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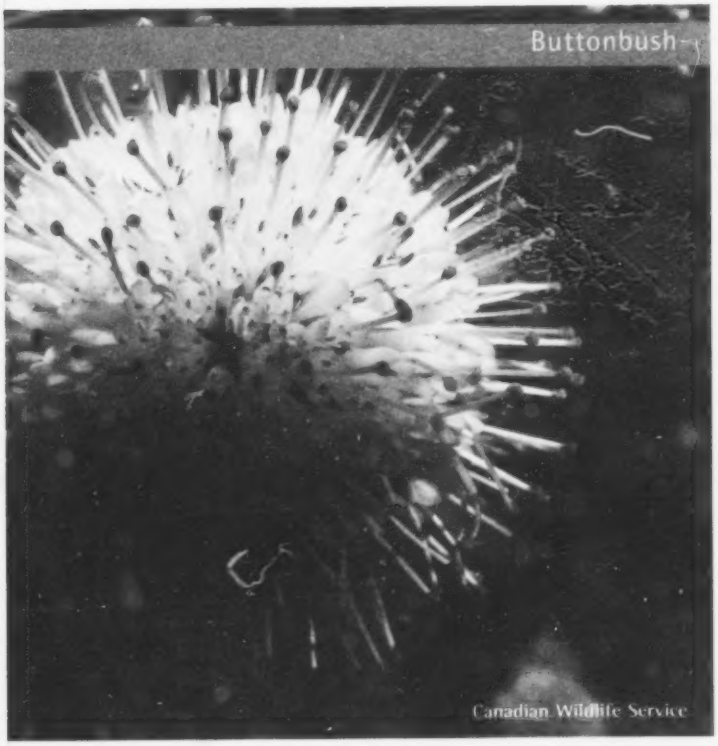
Atocas Bay – Securement, Rehabilitation and Awareness in Eastern Ontario

In the spring of 2001, EHJV partners including Environment Canada, MNR and DUC, purchased a 648-hectare property fronting on the Ottawa River, known as Atocas Bay. The area is approximately 50 kilometres east of Ottawa and is a significant wetland pothole complex containing over 200 individual wetland basins. Unfortunately, land use practices, including agricultural drainage, have resulted in the loss of up to 90 percent of the wetlands in the area.



Since acquisition, DUC has begun to restore many of these wetland basins for the benefit of waterfowl, other wildlife, and people. The use of simple earthen plugs, small dykes and water-management structures has restored hydrology and resulted in the return of aquatic vegetation to the wetlands.

In addition, the property is used to demonstrate to local landowners and resource agencies the functions and values of wetlands, and benefits of land conservation practices. Conservation-oriented agricultural land use practices will be critical to enhancing the surrounding area.

Although the Atocas Bay property is relatively contiguous, there are a few private land parcels that break up the area and as such do not allow the restoration and management to be carried out to its full potential. DUC staff have identified four key properties that would consolidate the project. Two of these landowners have confirmed an interest in securing their lands (excluding their residences and immediate area).

This project has great potential to benefit breeding waterfowl and also to have significant and positive impacts on the local attitudes and future activities of land managers and resource organizations towards wetlands.

For more information contact Ducks Unlimited Canada (see Contacts).

Opening the Cattails at Cooper Marsh

Dense stands of one plant species in coastal wetlands often result from limited water level fluctuations. These monotypic communities can become so dense that fish and wildlife movement is limited and overall plant diversity is reduced. During the 1980s, channelization opened up a monotypic cattail stand at the Cooper Marsh Conservation Area near Cornwall and enhanced the breeding and migration of waterfowl and access by fish.

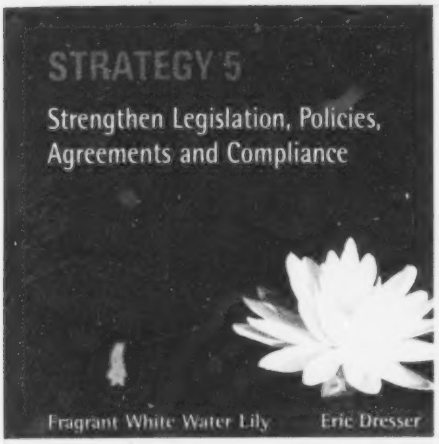
Partners in a renewed effort to rehabilitate Cooper Marsh hope that further opening the cattail mat will result in a greater biological and vegetative diversity. During the winter/spring months of 2002 a series of serpentine channels and associated large ponds with loafing sites were constructed. This project will increase spawning and nursery habitat for a number of fish species, including Yellow Perch and Largemouth Bass, and is hoped to further increase the viable habitat of breeding and migratory waterfowl.

Project partners include Environment Canada's Great Lakes Sustainability Fund, Eastern Habitat Joint Venture, Raisin Region Conservation Authority, Ministry of Natural Resources, St. Lawrence River Institute of Environmental Sciences, Department of Fisheries and Oceans, Job Creation Program, and Ducks Unlimited Canada.

For more information contact the Raisin River Conservation Authority (see Contacts).

STRATEGY 5

Strengthen Legislation, Policies, Agreements and Compliance



Fragrant White Water Lily — Eric Dresser

In Ontario, there is no specific wetlands legislation. Wetlands are protected indirectly by a number of federal and provincial acts (the provincial *Planning Act, Fish and Wildlife Conservation Act, Municipal Act, Endangered Species Act, Lakes and Rivers Improvement Act, Conservation Land Act, Conservation Authorities Act, Environmental Assessment Act, Ontario Water Resources Act,* and the federal *Canada Wildlife Act, Fisheries Act, Migratory Birds Convention Act,* and *Canadian Environmental Assessment Act*), but are most often protected through policies, agreements and regulations. GLWCAP partners continue to review and promote strengthening and enforcement of existing policies whenever possible.

The Canada – Ontario Agreement and GLWCAP

The most recent Canada – Ontario Agreement Respecting the Great Lakes Basin Ecosystem (COA) was signed in March 2002 and will last for five years, ending in 2007. COA represents a coordinated effort between the Province of Ontario and Canada to work together to improve the health of the Great Lakes basin. The implementation of the COA falls under four Annexes: Lakewide Management, Areas of Concern, Harmful Pollutants, and Monitoring and Information Management. Under the Lakewide Management Annex, Result 2 (Rehabilitate, conserve and protect fish and wildlife habitats and protected areas) both Canada and Ontario are called upon to implement GLWCAP. This ensures the long-term commitment of both parties to the Agreement to continue to conserve Great Lakes wetlands.

The full text of the COA is available on-line at www.on.ec.gc.ca/coa.

The Walkerton Water Tragedy – Wetlands get "Standing"

Anyone who lived in Canada in the spring and summer of 2000 became acutely aware of the tragic events that transpired in the small town of Walkerton, located on the banks of the Saugeen River in southern Ontario. Following a number of days of heavy rains, Walkerton's drinking water system became contaminated with deadly bacteria, primarily *Escherichia coli* O157:H7. Seven people died and more than 2,300 became ill as a result.

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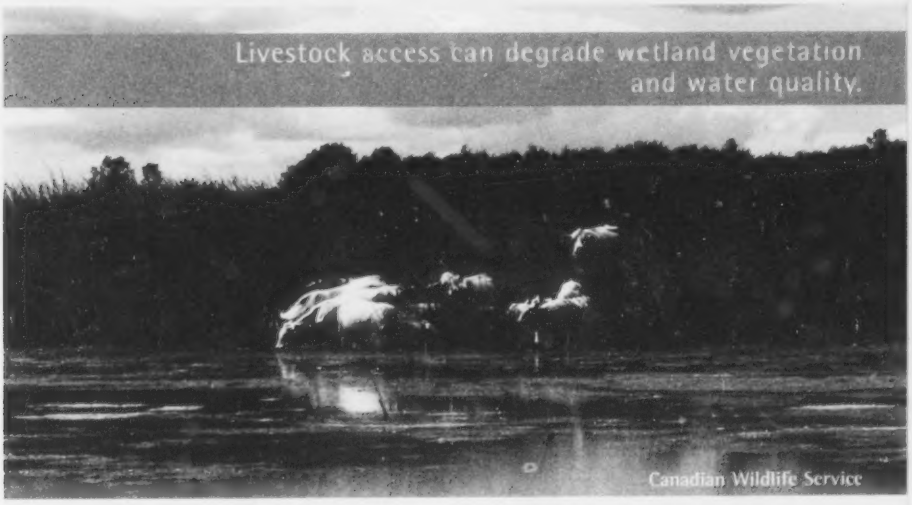
There were many interested parties who were heard at Part 2 of the inquiry and whose written and verbal contributions were considered in the final recommendations of the inquiry. Two of these contributions, from Ducks Unlimited Canada and Conservation Ontario, are particularly relevant to the importance of wetlands in maintaining water quality. These papers are available at www.ducks.ca and www.conservation-ontario.on.ca.

The final recommendations were grouped into Source Protection, Standards and Technology, Municipal Water Providers, Provincial Oversight and Special Cases. Source Protection is especially relevant to GLWCAP as it indirectly addresses the role of wetlands in preserving water quality. Source Protection aims to ensure that water quality is protected within the watershed before it reaches the water treatment plant. Justice O'Connor recommends watershed based planning, led by the Ontario Ministry of the Environment and by the Conservation Authorities (where appropriate).

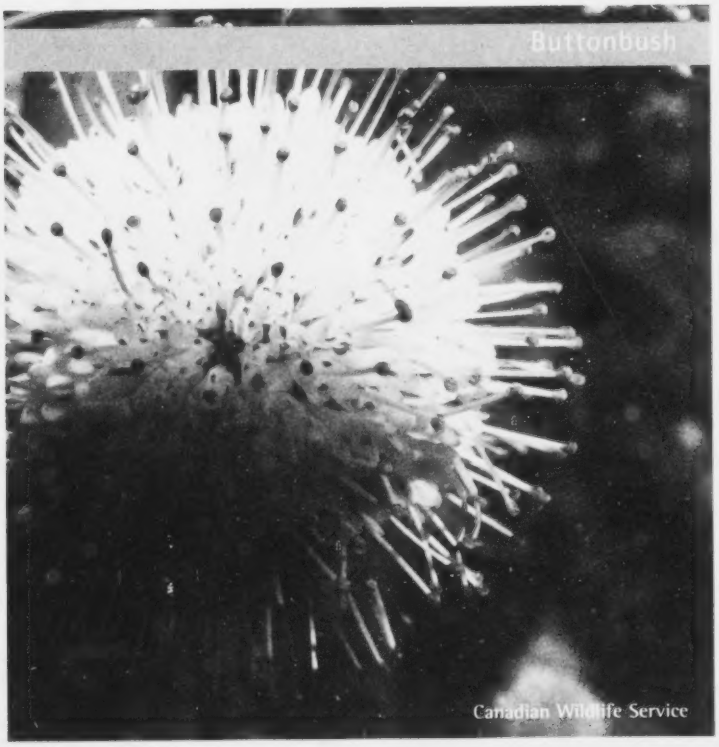


Livestock access can degrade wetland vegetation and water quality.

Canadian Wildlife Service

Atocas Bay – Securement, Rehabilitation and Awareness in Eastern Ontario

In the spring of 2001, EHJV partners including Environment Canada, MNR and DUC, purchased a 648-hectare property fronting on the Ottawa River, known as Atocas Bay. The area is approximately 50 kilometres east of Ottawa and is a significant wetland pothole complex containing over 200 individual wetland basins. Unfortunately, land use practices, including agricultural drainage, have resulted in the loss of up to 90 percent of the wetlands in the area.


Buttonbush

Canadian Wildlife Service

Since acquisition, DUC has begun to restore many of these wetland basins for the benefit of waterfowl, other wildlife, and people. The use of simple earthen plugs, small dykes and water-management structures has restored hydrology and resulted in the return of aquatic vegetation to the wetlands.

In addition, the property is used to demonstrate to local landowners and resource agencies the functions and values of wetlands, and benefits of land conservation practices. Conservation-oriented agricultural land use practices will be critical to enhancing the surrounding area.

Although the Atocas Bay property is relatively contiguous, there are a few private land parcels that break up the area and as such do not allow the restoration and management to be carried out to its full potential. DUC staff have identified four key properties that would consolidate the project. Two of these landowners have confirmed an interest in securing their lands (excluding their residences and immediate area).

This project has great potential to benefit breeding waterfowl and also to have significant and positive impacts on the local attitudes and future activities of land managers and resource organizations towards wetlands.

For more information contact Ducks Unlimited Canada (see Contacts).

Opening the Cattails at Cooper Marsh

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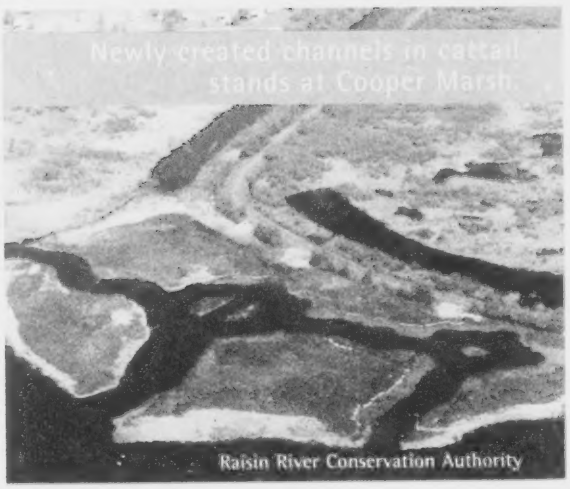
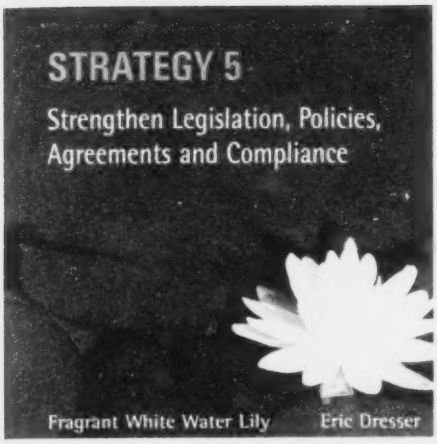

Newly created channels in cattail stands at Cooper Marsh

Raisin River Conservation Authority



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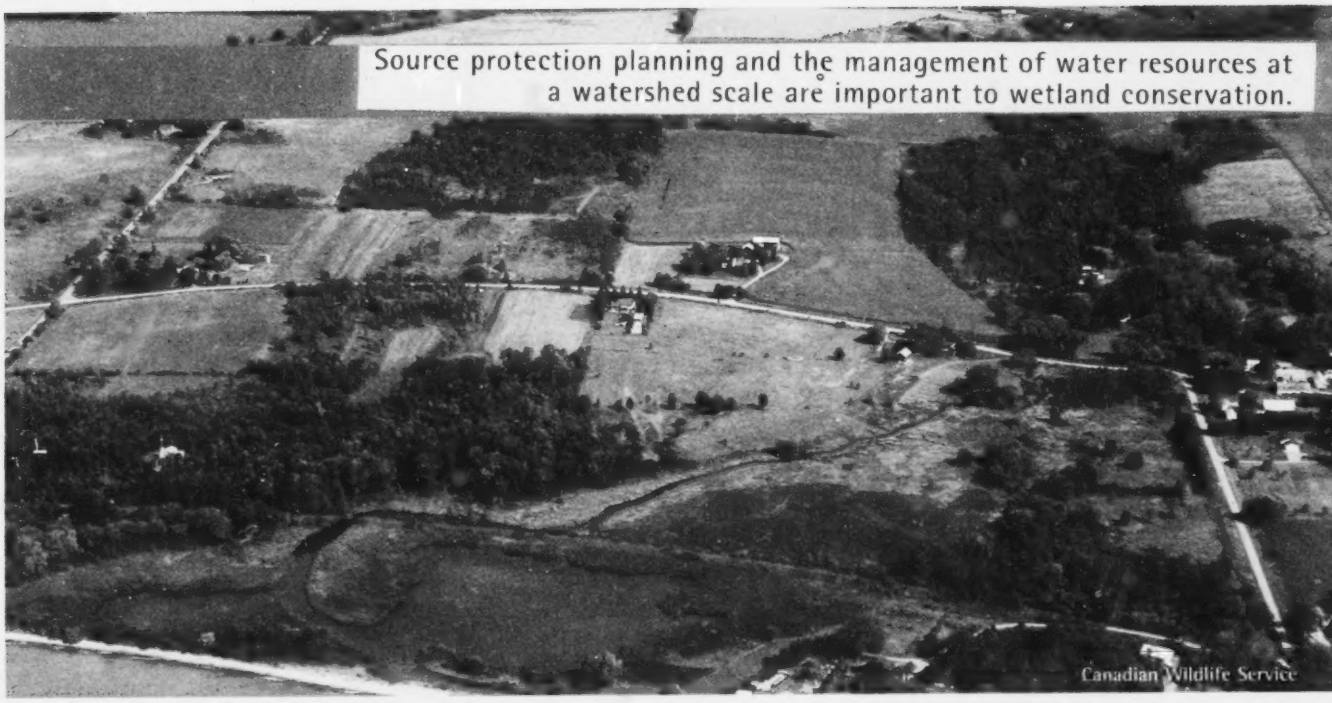

Source protection planning and the management of water resources at a watershed scale are important to wetland conservation.
Canadian Wildlife Service

Each watershed in the province would have a source protection plan developed which would include, "at a minimum":

1. a water budget for the watershed, or a plan for developing a water budget where sufficient data are not yet available;
2. the identification of all significant water withdrawals, including municipal intakes;
3. land use maps for the watershed;
4. the identification of wellhead areas;
5. maps of areas of groundwater vulnerability that include characteristics such as depth to bedrock, depth to water table, the extent of aquifers, and recharge rates;
6. the identification of all major point and non-point source of contaminants in the watershed;
7. a model that describes the fate of pollutants in the watershed;
8. a program for identifying and properly decommissioning abandoned wells, excavations, quarries, and other shortcuts that can introduce contaminants into aquifers;
9. the identification of areas where a significant direct threat exists to the safety of drinking water (in such cases, municipal Official Plans and zoning decisions mush be consistent with the plan); and,
10. the identification of significant knowledge gaps and/or research needs to help target monitoring efforts."

Many of these recommendations include wetlands indirectly. For example, in order to complete a water budget, it is necessary to know where water is being stored within the watershed. Often wetlands are a major area of water storage. Similarly, in order to complete a land use map of a watershed, all wetlands must be noted.

The provincial government is moving forward to address the recommendations.

- The *Nutrient Management Act* was passed in June 2002 and will play an important role in protecting source areas by minimizing the effects of agricultural practices on the environment.
- Significant funding has been allocated to establishing a provincial groundwater monitoring network and increasing groundwater studies to identify wellhead protection areas in communities that rely on ground water for drinking water supply.
- The Ministry of the Environment and Ministry of Natural Resources are working to conduct watershed pilot projects that will address a range of approaches to managing and protecting water resources with local communities.
- The province's Conservation Authorities will also play an important role in implementation, as they are the only agency in Ontario structured on a watershed basis. They will work in partnership with the provincial government to set up more than 350 water quality monitoring stations throughout Ontario, and will also contribute to the development of water budget knowledge and methodologies.
- In November 2002, an Advisory Committee was established to guide the development of a framework for protecting drinking water at the source. A draft framework should be ready in early 2003. Advisory Committee members represent a wide range of interests and expertise related to watershed-based source protection planning, from municipalities and the agricultural community, to conservation organizations, First Nations and academic interests.

For more information, visit www.ene.gov.on.ca.

Using the *Drainage Act* to Restore Wetlands?

For years, the provincial *Drainage Act* has frustrated those who work to conserve and protect wetlands as it permits draining water from wetlands, often to allow agricultural land uses in naturally wet areas. The emergence of an innovative project in Norfolk County, bordering the north shore of Lake Erie at Long Point may change all that.

Farmers in Norfolk County have experienced lower than average precipitation in four of the last five years, resulting in decreased agricultural revenues, dry wells, depleted aquifers and the degradation of local stream ecosystems and wetlands. In response, the Ministry of Natural Resources, Norfolk County and cooperating landowners are altering municipal drains to restore wetlands and their associated water storage, ground water recharge and water purification functions.

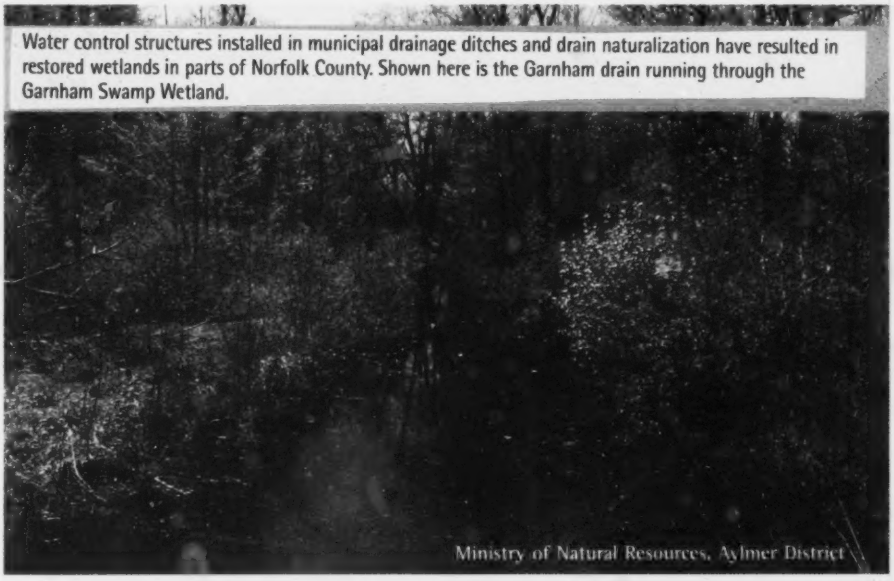
The Wetland Drain Restoration Project is a multi-partnered government and non-government collaboration that facilitates the restoration of wetlands being drained by municipal drains, through the installation of water control structures. Benefits to local communities include ground water recharge, maintenance of surface water baseflows, and help for those who use water to lessen the impacts of recent drought conditions. Preliminary monitoring by the University of Western Ontario has shown that both ground and surface water conditions have been improved on restored sites. Wetland flora and fauna have also returned to some of the restored wetland areas.

Cooperation, communication and partnerships have been essential for success in the Norfolk area to modify drains for enhanced agricultural and wetland benefits. One unanticipated benefit has been that after seeing the success of such projects for agriculture, neighboring landowners are considering wetland drain restoration on their own properties.

The *Drainage Act* has been used as a tool in this project by drainage superintendents in Norfolk County who understand the value of wetlands and their ability to restore water quantity and quality in the landscape. One of the most significant benefits of using the *Drainage Act* for wetland restoration, is that restoration efforts are secured by bylaw. Drain modification and structures will remain even if there is change in ownership of the land. Further, the drainage superintendent is responsible for maintenance and operation of the structures.

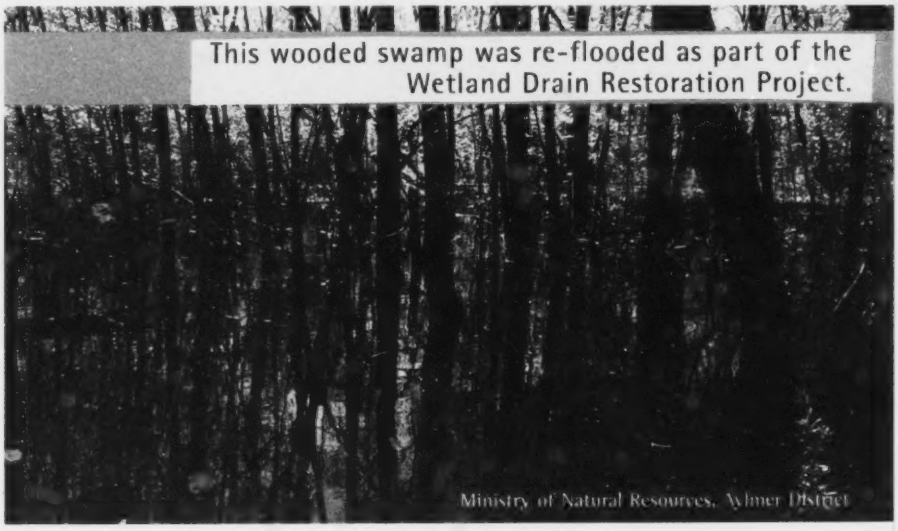
The Norfolk Land Stewardship Council and Norfolk County successfully completed a prototype project on the Big Marsh Drain in 1999. The Ministry of Natural Resources, Norfolk County and partners have since completed 16 wetland restoration feasibility studies in Norfolk County and seven in Elgin County. Five sites have been restored in Norfolk County totaling 145 hectares of wetland area. Six sites are pending restoration in 2003 (one in Elgin County) totaling 160 hectares of wetland area. Forty-seven sites have been identified for future feasibility studies in Elgin and Norfolk County. Ten additional new sites have been identified through the initiative of landowners and drainage superintendents throughout southern Ontario. The positive momentum created by the Wetland Drain Restoration Project is obvious, and will support the expansion of the project throughout Ontario in the coming years.

For more information contact the Wetland Drain Project (see Contacts).



Water control structures installed in municipal drainage ditches and drain naturalization have resulted in restored wetlands in parts of Norfolk County. Shown here is the Garnham drain running through the Garnham Swamp Wetland.

Ministry of Natural Resources, Aylmer District



This wooded swamp was re-flooded as part of the Wetland Drain Restoration Project.

Ministry of Natural Resources, Aylmer District

Bait-Frog Harvesting Regulations in Ontario

New regulations were introduced in 2000 to address the MNR concern that the unregulated bait-frog industry in Ontario might be having a negative impact on frog populations. As a result, only Northern Leopard Frogs may be legally harvested, frogs can only be commercially harvested east of Peterborough County, and harvesters require licenses and must report their catch.

The MNR and Watershed Science Centre (associated with Trent University) are coordinating several bait harvesting research projects. In order to make sure that the industry is not having a negative impact on Northern Leopard Frog populations, a monitoring program has been put in place in which 150 permanent stations are monitored every spring. The balance between colonizations and local extinctions is used to assess the health of the Northern Leopard Frog population over a broad area.

The Five-year Review of the Provincial Policy Statement

Ontario's policies on matters of provincial interest related to land use planning and development are undergoing a scheduled five-year review. These policies are contained in what is known as the Provincial Policy Statement (PPS), under the province's *Planning Act* and include natural heritage policies related to wetlands. The purpose of the review is to find out whether the PPS needs to be revised. The review includes consultations to hear about the effectiveness of the PPS policies, the need for revisions and the nature of any possible changes.

The formal comment period finished in fall 2002, followed by the provincial government addressing concerns and reviewing submissions. GLWCAP partners Environment Canada, Ducks Unlimited Canada and the Nature Conservancy of Canada submitted a joint letter to the Minister of Municipal Affairs and Housing (who administers the Act) expressing the common goal of recommending administrative changes to improve the effectiveness of the current provincial wetlands policy. The Minister was encouraged to strengthen the natural-heritage policy (2.3 of the Policy Statement), specifically as it relates to wetland conservation in Ontario.

The land use policies being reviewed have great influence over wetlands in Ontario. They set out guidelines for land use planning in the province. The *Planning Act* requires that municipalities, provincial ministries, the Ontario Municipal Board and other decision-makers "have regard" to the Provincial Policy Statement when making decisions on land use planning matters.

Canada's *Species at Risk Act*

The Government of Canada's three-part strategy to protect species at risk consists of building on the federal-provincial-territorial Accord for the Protection of Species at Risk, developing and implementing stewardship and incentive programs, and creating and passing federal endangered species legislation, the *Species at Risk Act* (SARA), Bill C-5. At the time of the previous GLWCAP Highlights Report, legislation to improve Canada's species at risk protection was in preparation. Since that time, Bill C-5 has been passed into law.

Under SARA, COSEWIC (Committee on the Status of Endangered Wildlife in Canada) is given legal status and will continue to assess and classify species at risk using the best available knowledge. Further, SARA will prohibit the killing, harming, harassing, capturing or taking of species officially listed as threatened, endangered or extirpated, and the destruction of their residences. Protection of critical habitat for those species will be provided through the development and implementation of recovery strategies and action plans. Once identified, critical habitat will be protected by conservation agreements, provincial or territorial legislation, or federal prohibitions.

For up-to-date information about Canada's proposed Species at Risk Act, visit www.speciesatrisk.gc.ca.

Milestones of SARA Development:

- February 2001. Bill C-5 was introduced into the House of Commons.
- March 2001. The Bill received second reading and was referred to the House Standing Committee on Environment and Sustainable Development.
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- June 2002. Bill C-5 was passed by the House of Commons.
- October 2002. The Bill was introduced into the Senate, received second reading and was referred to the Senate Committee on Energy, Environment and Natural Resources for consideration.
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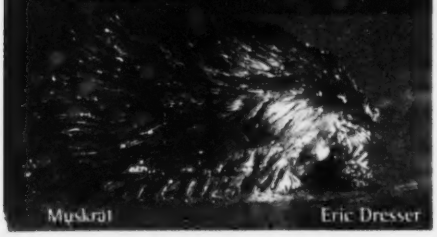
STRATEGY 6

Strengthen Local Planning and Commitment to Wetland Conservation



Muskrat Eric Dresser

The interest, efforts and commitment of local citizens ensure that many wetlands remain in good condition or receive rehabilitation. The importance of local efforts in wetland conservation is at times undervalued. Supporting local groups ensures that projects, maintenance and monitoring are completed. Training and assistance to develop the membership and skills of these groups are important.

Grand River Conservation Authority Wetlands Policy

The Grand River watershed is the largest in southern Ontario, covering 7,000 square kilometres from the shores of Lake Erie north to Dundalk, an area the size of the province of Prince Edward Island. The watershed is one of the richest agricultural regions in Ontario and one of the most rapidly growing, with population estimates suggesting 37 percent growth over the next 20 years. This intensive land use creates many watershed-wide resource management issues including the ability of the river and groundwater system to meet the demand for water, the maintenance of river water quality, the capacity of the Grand River to receive waste water and the protection of wildlife habitats under the stresses of urbanization.

These stresses are taxing the watershed's wetlands. Like much of Ontario, the Grand River watershed has lost between 65 and 85 percent of its wetlands and losses continue. In response, the Grand River Conservation Authority (GRCA) has taken the initiative to strengthen wetland protection and management throughout the watershed through the administration of its Fill, Construction and Alteration to Waterways Regulation and other resource management programs. The GRCA Wetlands Policy was developed with extensive stakeholder input and is written to complement the current Provincial Policy Statement regarding Provincially Significant Wetlands.

The Policy is built on four guiding principles:

- wetlands are critical to sustaining surface and groundwater quality and quantity and, therefore, essential to the well-being of humans and all other forms of life in the Grand River watershed;
- wetlands are core components of the natural heritage system of the Grand River;
- wetlands will be managed on a watershed and subwatershed basis; and,
- wetland loss will be avoided.

Wylde Lake Bog in the upper Grand River watershed.

Grand River Conservation Authority

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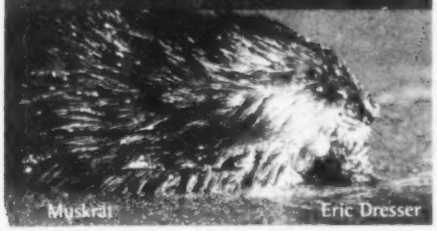

Muskrat — Eric Dresser

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wetland loss will be avoided.

Grand River Conservation Authority

In the July 2002 draft of the policy released for municipal review, there are six broad Wetland Policies identified. Under each Policy are a series of specific objectives and implementation guidelines. The six overarching policies are:

1. Wetland Identification and Data Management;
2. Planning and Protection;
3. Land Securement;
4. Stewardship;
5. Information and Education; and,
6. Monitoring and Reporting.

Given the size of the Grand River watershed and the difficulties in managing such a large and diverse landscape, the GRCA has had to evolve to keep pace with changes in watershed science, and land management and protection, thrusting the GRCA into the forefront as one of Ontario's most cutting-edge Conservation Authorities. Once approved by board members (likely in 2003), the GRCA Wetlands Policy will be a major step towards local wetland protection, thereby leading the way for other Conservation Authorities in Ontario to adopt similar wetland protection policies and targets.

For more information contact the Grand River Conservation Authority (see Contacts) or visit www.grandriver.ca.

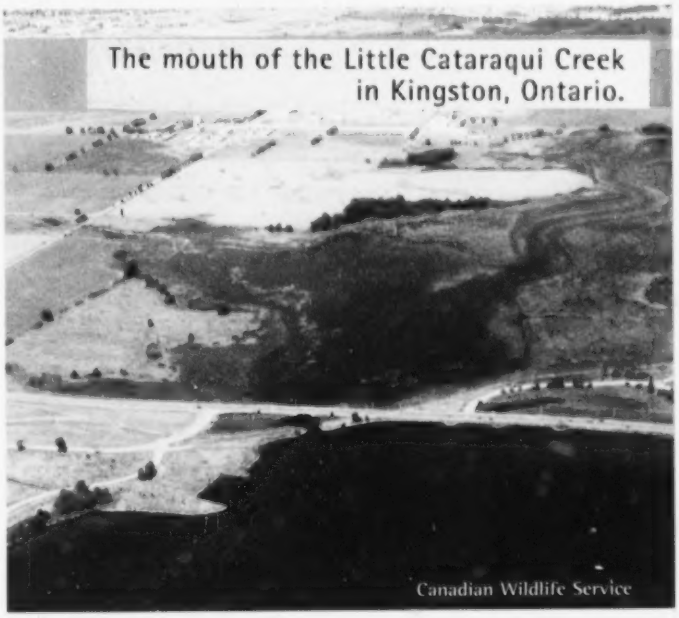
Kingston Wetlands Working Group – Community Action on all Fronts

For seven years, the members of the Kingston Wetlands Working Group (KWWG) have met on an informal basis to share experiences, knowledge, expertise and resources in an effort to protect and restore the wetlands and natural corridors in the Kingston area. The group is a coalition of government and non-government organizations that recognize the importance of the wetlands of this area to watershed water quality and quantity and as wildlife habitat, and is an excellent example of the effectiveness of local cooperation and coordination.

The KWWG has received two grants from Environment Canada's EcoAction program providing four years of funding for Little Cataraqui Creek Improvement Projects. The goal of the project is to provide assistance and educational materials to private landowners who are interested in enhancing or creating a vegetative buffer along the creek. Thousands of shrubs, trees, wildflowers and wetland plants have been planted at sites around the City of Kingston. Planting sites include City parks, the Frontenac (Correctional) Institution, and private landowner properties. Volunteers from Boy Scouts and Girl Guides, Queens University students, local schools, cadets and corrections volunteers have been involved in planting activities. A series of fact sheets and a brochure about wetlands, buffers and the Little Cataraqui Creek have been developed to promote the Buffer Project to the local community.

The KWWG is involved in many other aspects of wetland conservation in the area. Members are currently coordinating creating channels within a monoculture cattail stand to increase edge habitats and wildlife usage. A 200-metre stretch of the creek will be bioengineered and re-graded to reduce erosion and sedimentation. KWWG's advice is often sought regarding local wetland management and protection issues, such as assessing the potential impact on area wetlands of expanding Highway 401, a major throughway that will cross significant wetland area, and the attempt to incorporate wetlands and corridors into the City's Waterfront Planning Policy.

The group is committed to protecting and restoring wetland ecosystems in the Kingston area through public education, good stewardship, and cooperative action. With members from the


The mouth of the Little Cataraqui Creek in Kingston, Ontario.

Canadian Wildlife Service

Cataraqui Region Conservation Authority, Ducks Unlimited Canada, the Ontario Ministry of Natural Resources, Environment Canada, the Kingston Field Naturalists, Loyalist Township, Canadian Forces Base Kingston, Correctional Services Canada, South Frontenac Stewardship Council, Parks Canada-Rideau Canal, and the City of Kingston the group has a great breadth and depth of technical experience in dealing with wetland issues including engineering, biology, communications and legislation.

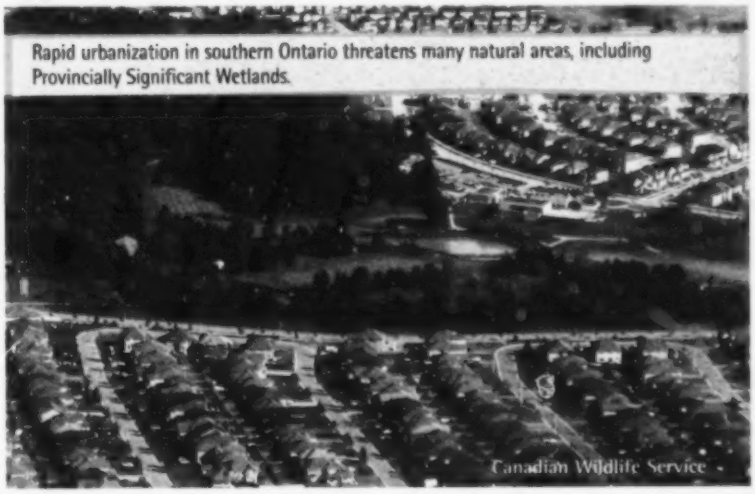
For more information, contact the Kingston Wetlands Working Group (see Contacts).

Going beyond the Provincial Policy Statement for Wetland Conservation

The Provincial Policy Statement for Ontario (PPS) (1997) issued under the *Planning Act* provides policy direction on matters of provincial interest related to land use planning and development, including the protection of natural heritage features such as significant wetlands. Provincial policies complement locally-generated policies regarding matters of local interest, and set minimum standards for planning in Ontario. Local planning decisions are required to "have regard to" stated provincial interests.

Section 2.3 of the PPS states that natural heritage features will be protected from incompatible development, more specifically "development and site alteration will not be permitted in significant wetlands south and east of the Canadian Shield". Significant wetlands defined in the PPS are those wetlands that have been evaluated using the Ontario Wetland Evaluation System and considered to be provincially significant.

The PPS does not restrict local plans from going beyond the minimum standard in developing local official plans and making decisions on planning matters, unless doing so would conflict with any other provincial interest and/or policy. This allows wetland protection policies to be enhanced in Official Plans. For example, in Simcoe County the Township of Springwater's Official Plan (2001) has gone beyond the minimum standard in the PPS to protect all evaluated wetlands from development. In addition, the Township's Official Plan does not allow development within 30 metres of provincially significant wetlands, and 15 metres of locally significant wetlands. Springwater's policies are an excellent example of progressive local policies on wetland conservation.



Rapid urbanization in southern Ontario threatens many natural areas, including Provincially Significant Wetlands.

Canadian Wildlife Service

High School Receives Funding to Complete Wetland Evaluations

Haliburton high school seniors are about to learn about their local wetlands. Emma Thurley, a high school teacher from Haliburton Highlands Secondary School contacted several agencies to learn more about the protocols required to monitor local wetlands with her students. Very few wetlands have been officially evaluated by the MNR in the area, as it is an expensive and time-consuming process.

Thurley received a great deal of information, including the *Ontario Wetland Evaluation System Manual* from the MNR, and *Environment Canada's Rehabilitating Great Lakes Habitats: A Resource Manual.* She then secured funding from the MNR through the Community Wildlife Involvement Program to attend the Ontario Wetland Evaluation training course at Nipissing University in the summer of 2002.

Thurley will begin taking senior students to local wetlands this year and passing on the knowledge that she has gained. The project will not only help the county protect potentially significant wetlands, but will also give students hands-on experience and show them potential career opportunities. Green Street, an environmental education coordinating agency supported by the J. W. McConnell Family Foundation, will help pay for buses to transport students to the field sites, local landowners are participating by allowing the use of private boats, and Ducks Unlimited Canada is providing additional funding and resources.

How Much Habitat is Enough? A 2002 Assessment

The *Framework for Guiding Habitat Rehabilitation in Great Lakes Areas of Concern* was published in 1998 as a joint effort between Environment Canada, the Ontario Ministry of Natural Resources and the Ontario Ministry of the Environment. It was intended to provide guidelines for habitat rehabilitation with the goal of restoring lost beneficial uses of wildlife habitat in AOCs on the Canadian side of the Great Lakes.

A major feature of the *Framework* is that it offers guidelines for the amount and type of habitat and thresholds that should be present in a degraded watershed to allow for various wildlife communities. For example, the guideline for wetland rehabilitation for AOCs is to have 10 percent of each major watershed in wetland habitat, and six percent of each subwatershed in wetland habitat, or to restore to the original percentage of wetland in the watershed. The *Framework* has positively influenced municipal planning processes, such as in Tay Township in the Severn Sound Area of Concern, which was de-listed in 2002.

A 2002 assessment of the *Framework* and its application indicated that it is well used within AOCs, and is also beginning to be used outside AOCs.

- In most AOCs with impaired beneficial uses of wildlife habitat, the *Framework* is used to set habitat targets on a watershed basis, to locate habitat rehabilitation projects, and/or set AOC delisting criteria.
- Of the five Conservation Authorities located outside of AOCs who were aware of the *Framework*, all were using it to guide habitat rehabilitation, and also for a wide range of other applications.
- Among the applications of the *Framework* outside of AOCs was the use of the *Framework* by agencies as a scientific rationale for their watershed conservation and rehabilitation work in dealing with the public and politicians.

Eric Dresser

- Additional Conservation Authorities (16) who were not aware of the *Framework* were contacted and received a copy of the Great Lakes fact sheet *How Much Habitat is Enough?* Almost all expressed an interest in learning more and many identified the *Framework* as a needed scientific backing for watershed habitat conservation and rehabilitation.

In 2002/2003, a review of the literature published since the release of the *Framework* will ensure the latest scientific information is in use; also there will be further promotion of this already successful tool.

Copies of the Framework for Guiding Habitat Rehabilitation in Great Lakes Areas of Concern and the Great Lakes Fact Sheet How Much Habitat is Enough? are available from Environment Canada, Toronto (see Contacts).

The Oliver Family Takes the Lead on Restoration

The Welland River meanders through the privately-owned, 33-hectare Oliver property, with small surface channels and tributaries flowing towards the river from the surrounding undulating uplands. Historically, wetlands comprised 27 percent of the upper Welland River tributaries; mostly slough forests, floodplain wet meadow and marsh areas. Currently this area of the watershed has only 2.4 percent wetland habitat with considerable forest fragmentation. In recent years, the land was used for agricultural production. However, during high flow events, the Welland River backed water up into the low-lying field at the front of the property.

The Oliver family approached the Niagara Peninsula Conservation Authority (NPCA) to enquire about initiating a project on their property after receiving NPCA information about habitat restoration. The family felt that cash-cropping was not a suitable activity for the low-lying portion of their land – it was their goal to see the site restored back to its original wetland state.

In 1999, wetland restoration and a habitat management plan were initiated. The project design included the restoration of the half-hectare depression area to an open-water wetland, with enhancement of floodplain swamp forests. In addition, 14 hectares of upland forest (12,000 seedlings) and grasslands were restored, thereby connecting existing riparian and woodland areas. Partners included the NPCA, Wetland Habitat Fund, Environment Canada's Great Lakes Sustainability Fund, Land Care Niagara, Ontario Power Generation and in-kind support from contractors and volunteer groups.

Construction of the Oliver wetland.

Niagara Peninsula Conservation Authority

The NPCA uses the *Framework for Guiding Habitat Rehabilitation in Great Lakes Areas of Concern* to guide the selection of priority areas for restoration throughout their jurisdiction. The Oliver property had been selected as a priority site for restoration as it would support three targets from the *Framework*:

- Percent forest cover – the project resulted in increased forest cover and connectivity;
- Percent wetlands in watersheds and subwatersheds – the project resulted in the restoration of marsh and swamp area; and,
- Amount of natural vegetation adjacent to streams – the project resulted in increased buffer area adjacent to first to third order streams.

Enhancing this wetland increases the floodplain area, slows surface flow during flood and snowmelt events, and helps prevent downstream flooding. The wetland provides habitat for frogs and turtles and other wildlife, filters sediments, and provides nutrient uptake, which has improved water quality on this property.

For more information, contact the NPCA (see Contacts).

The Oliver wetland post-restoration.

Niagara Peninsula Conservation Authority

Great Lakes Aquatic Habitat Network and Fund – Support for Grassroots Action

The Federation of Ontario Naturalists (FON) is the Ontario coordinator for the Great Lakes Aquatic Habitat Network and Fund (GLAHNF). The network and fund were started in 1996 by the Tip of the Mitt Watershed Council in Michigan, with financial backing from the C.S. Mott Foundation. The purpose is to provide information and financial support to grassroots citizen initiatives working to protect and restore Great Lakes shorelines, wetlands, inland lakes, rivers and other aquatic habitats in the Great Lakes basin. GLAHNF includes a grants program – twice-yearly awards of grants ranging from $500 to $3,500 U.S. for grassroots aquatic habitat projects in Ontario and the Great Lakes states.

Among the Ontario initiatives funded recently relating to wetlands protection have been: work by the Water Protection Coalition of South Grey and by the Grey Association for Better Planning to prevent a proposed commercial groundwater bottling operation (near Flesherton) from diminishing a wetland's water storage capacity; work by Environment North to build community support for the Lake Superior National Marine Conservation Area; and public education workshops led by GreenCase in Caledon on protecting local wetlands and woodlands.

Cloud Bay on Lake Superior.

Walmo Jacobson

A GLAHNF grant of $3,100 U.S. to the Shoreline Stewardship Association of Cloud Bay recently yielded particularly positive results. The group, located near Thunder Bay, sought to educate the public and the government of a small municipality about the ecological importance of wetlands and to prevent the establishment of a fully-serviced, 70-unit seasonal trailer park on the banks of the Cloud River near its mouth and the associated Cloud Bay estuary, a Provincially Significant Wetland. Coastal wetlands are rare on Lake Superior, making up approximately six percent of the Canadian shoreline, and the Cloud Bay estuary has especially high biodiversity.

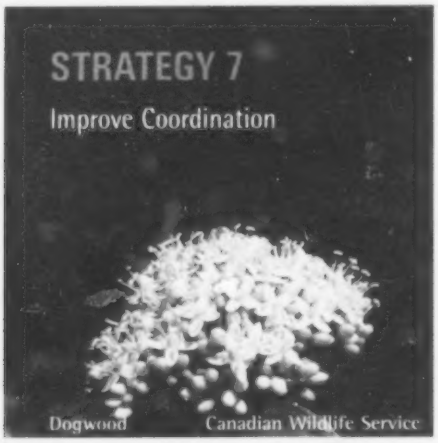
The Stewardship Association appealed the municipal approval of the trailer park proposal to the Ontario Municipal Board (OMB) based on concerns about:

(a) the potential for the development to irreversibly disturb the sensitive and pristine wetland ecosystem, for example by boaters and personal watercraft users accessing the wetland from the campground; and,

(b) how proper enforcement of any restrictions placed on motorized water access to the wetland from the campground could be achieved.

In an August 2002 decision, the OMB agreed with the position of the Stewardship Association and allowed the appeal.

GLANHF's second function is to facilitate networking among Great Lakes aquatic habitat community groups. Two ways in which networking happens are through the bi-monthly *Great Lakes Aquatic Habitat News*, available on-line at www.glhabitat.org and in hard copy from the Federation of Ontario Naturalists (see Contacts). Also, the new Great Lakes Directory is an extensive, on-line resource of Great Lakes environmental information with regular news updates and listings for over 1,000 environmental organizations, found on-line at www.GreatLakesDirectory.org.



When dealing with an issue that is as geographically, politically and ecologically complex as wetland conservation, it is essential to maintain communication with and encourage participation by a wide variety of government and non-governmental organizations. The GLWCAP partners have participated in and contributed to many information-sharing products and forums over and above those highlighted in this document, including consultative planning exercises, workshops, conferences and meetings.

Canadian Wetlands Stewardship National Policy Conference

The conference *Canadian Wetlands Stewardship: Setting a Course Together* is being held in Ottawa, Ontario from February 3 to 5, 2003 and will provide a look ahead in implementing wetland conservation and stewardship initiatives for the coming decade.

Over 600 delegates are expected to attend, representing Canada's resource industries, government and non-government wildlife, biodiversity and stewardship networks. A short Plenary Session is to be followed by six facilitated working sessions to develop national recommendations for action:

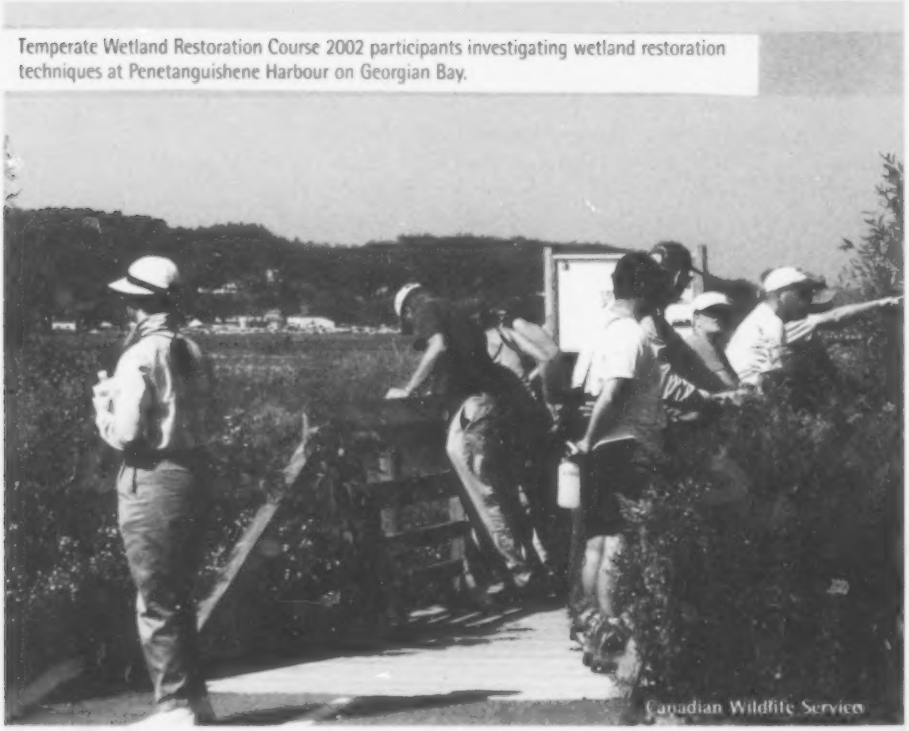
1. Wetlands in Working Landscapes;
2. Wetlands, Clean Water and Healthy Communities;
3. Canada's Wetland Industry;
4. Innovations in Wetland Technology;
5. Wetlands Inventory and Monitoring; and,
6. Wetland Education.

For more information, visit www.stewardshipcanada.ca or www.wetlandscanada.org.

Collaborative Training in Wetland Restoration

The seventh annual Temperate Wetland Restoration Course was held September 8 to 13, 2002 in watersheds throughout southern Ontario. Representatives from all areas of the environmental community participated – from Environment Canada and the Ontario Ministry of Natural Resources, to the City of Toronto, the Nature Conservancy of Canada, Wetland Habitat Fund and municipal drainage superintendents, among others. Experts from the field of wetland restoration shared their knowledge at various sites throughout the province as instructors to an enthusiastic group of individuals.

Temperate Wetland Restoration Course 2002 participants investigating wetland restoration techniques at Penetanguishene Harbour on Georgian Bay.



Participants in the course spent several days in the field learning to recognize characteristics of, and opportunities for, successful marsh and swamp restoration projects. Group activities included conducting field investigations and preparing presentations for three case studies. The first involved identifying impacts on and potential options for hydrological restoration of Greenock Swamp near Walkerton, the second required the development of three options for wetland restoration in the upper watershed of the Farewell Creek draining into Oshawa Second Marsh, and the third was presenting a restoration plan to a landowner near Luther Marsh at the headwaters of the Grand River.

The course was developed by a consortium including the Ontario Ministry of Natural Resources, Environment Canada, Ducks Unlimited Canada and Trent University.

For more information, visit www.trentu.ca/wsc/wetlandrestorecourse.shtml or contact the Ministry of Natural Resources (see Contacts).

Lakewide Management Plans – A Comprehensive Approach to Lakewide Ecosystem Restoration

The Governments of Canada and the United States, along with provincial, state and municipal governments and non-government organizations, have come together to ecologically restore each of the five Great Lakes. The 1987 Protocol to the Great Lakes Water Quality Agreement called for Lakewide Management Plans (LaMPs) to "embody a systematic and comprehensive ecosystem approach to restoring and protecting beneficial uses".

Wetland science is incorporated into the goals of the LaMPs through restoration of degraded fish and wildlife habitat and degraded populations of fish and wildlife. There are currently four LaMPs in progress – in Lakes Ontario, Erie, Superior, and Michigan. A similar process is underway for Lake Huron. The following paragraphs summarize some of the recent actions and progress to restore, protect and manage the ecosystems of each of the Canadian Great Lakes.

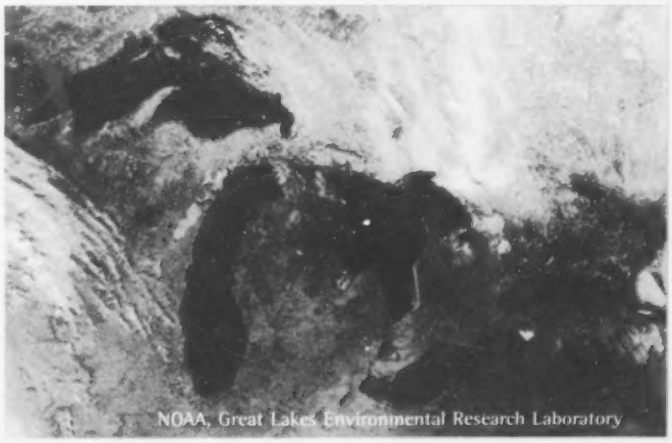
Lake Superior LaMP

The Lake Superior LaMP Binational Habitat Committee is a team of technical personnel from many resource agencies and tribal authorities, with the goal to protect and maintain existing high-quality habitat and restore degraded plant and animal habitat in the Lake Superior basin. Two recent activities of the Habitat Committee are:

- production of a map showing ecologically important areas around the basin with comments about special features at each site, including important wetland areas; and,
- strategic planning across the entire basin to identify needed activities and implement projects to protect or restore habitat features and the ecological processes that sustain them.

In the *Lake Superior LaMP 2002 Progress Report*, ecosystem challenges were identified, such as determining what constitutes a healthy mammalian community structure in the basin, placing greater emphasis on amphibian and reptile population restoration and protection, and promoting better local land use management decisions via locally driven projects and new legislation to protect wetlands where required.

Next steps for the LaMP include conducting outreach to local communities, providing resources to support habitat restoration and protection, and continuing to develop a comprehensive set of ecosystem targets to guide management actions over the long-term. For example, the draft ecosystem goal for wetlands, as presented in the *LaMP 2002 Progress Report*, is to create and distribute a spatial database of coastal wetlands, identify areas where restoration can occur by 2006, and restore 25 percent of the degraded wetland acreage in the Lake Superior basin by 2010.



NOAA, Great Lakes Environmental Research Laboratory

"Delisting" Severn Sound: Cooperative Action for Success

In October 2002, the federal and provincial governments announced that Severn Sound was to become the second area (after Collingwood Harbour) to be removed from a list of 43 original AOCs located around the Great Lakes basin in both Canada and the United States. As part of the activities of the Severn Sound Remedial Action Plan (RAP), sewage treatment plants were upgraded to alleviate combined sewer overflows and combine municipal and private sewage systems. Water quality, contaminated sediment and wildlife monitoring studies were carried out in the open water and in the tributaries. Coastal wetland habitat was rehabilitated in Penetang Bay, Midland Bay and Hog Bay and the general trend of coastal wetland habitat loss was greatly reduced during the 1990s.

The removal of Severn Sound from the list of AOCs does not mean that the work is over. Through continued community involvement and financial support, this area can become a model of sustainability, bringing together the community and governments to preserve what they have worked so hard to restore.'

Lake Erie LaMP

The *Lake Erie LaMP 2002 Report* outlines the need for, and initial development of, a Lake Erie Habitat Strategy. Habitat loss and degradation has been identified as one of the top three stressors that must be addressed to restore Lake Erie. The habitat strategy provides a framework to guide and coordinate habitat protection and restoration efforts in the Lake Erie basin. Monitoring will switch from a focus on species presence or absence and the amount of habitat acquired or restored, to a more detailed focus on population numbers and habitat function. The Lake Erie LaMP will work with key groups and agencies involved in habitat protection, restoration and management in the Lake Erie basin and attempt to coordinate the many existing habitat related projects that are already underway.

Lake Ontario LaMP

The *Lake Ontario LaMP 2002 Report* provides a summary of actions taken and progress by the LaMP. Highlights of the report include:

- the LaMP has adopted ecosystem indicators to track progress, including critical pollutant indicators and lower and upper foodweb indicators;
- fish and wildlife populations have improved;
- populations of benthos and phytoplankton are degraded due to zebra mussels;
- levels of critical pollutants in fish and wildlife continue to decline; and,
- sources of critical pollutants in the Lake Ontario basin are being addressed.

Lake Huron Binational Partnership

Binational federal, provincial, and state agencies have recently agreed to engage in a new lakewide management process for Lake Huron. Building on the Michigan Department of Environmental Quality's Lake Huron Initiative, the Lake Huron Binational Partnership will prioritize and coordinate activities in the basin under several key issues. Wetland-related issues that the Binational Partnership will address are: pollutants causing fish and wildlife consumption restrictions, status and trends in fish and wildlife habitat and communities, and biodiversity and ecosystem structure and function (including effects of exotic species). Domestic programs by federal, provincial, and state agencies as well as by First Nations and non-government organizations currently address many of these issues. Some examples are the Great Lakes Fishery Commission, and the Great Lakes Heritage Coast project. The intention of the Binational Partnership is to link these programs and activities through a targeted workplan. Currently a five-year workplan is being developed, with a detailed workplan for the next two years. Such linkages will integrate information, technology transfer, priority setting, and public involvement.

For more information about the Lake Superior, Erie or Ontario LaMPs, visit www.on.ec.gc.ca/water/greatlakes/program-lamps-e.html.

For more information about the Lake Huron Initiative, visit www.michigan.gov/deq.

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Volunteer for Nature

Volunteer for Nature is a new partnership between the Federation of Ontario Naturalists (FON) and Nature Conservancy of Canada (NCC) funded by the Ontario Trillium Foundation. The goal of this partnership is to provide people with the opportunity to work together, learn new skills and participate in hands-on conservation projects throughout Ontario.

Ontario Nature Volunteers (ONV)

Formerly called Working for Wilderness, ONV takes small groups on two to ten day working expeditions to build trails, monitor wildlife or restore habitats. The FON hosts this component of Volunteer for Nature. Recent wetland-related ONV projects have included boardwalk building at the wetland portion of Misery Bay on Manitoulin Island and at the silver maple swamp at Trent University; restoration work on the Trumpeter Swan wetland staging areas at Wye Marsh; and shade plantings around the wetland at FON's G.G. Newton Nature Reserve near Goderich.

Nature Conservation Days

These one day events are hosted by the NCC. Volunteers learn about ecological systems, diverse habitats, rare species, restoration techniques and natural area management issues. Nature Conservation Days are as different as the areas NCC protects. Volunteers help with native seed collection; invasive species removal; tree planting; meadow restoration; fence repair; monitoring and inventories; wetland, savanna, and prairie management; nesting and over wintering habitat creation, and many other conservation activities.

For more information, visit www.ontarionature.org/action/vfn.html.

Community-based Conservation Planning for Important Bird Areas (IBAs)

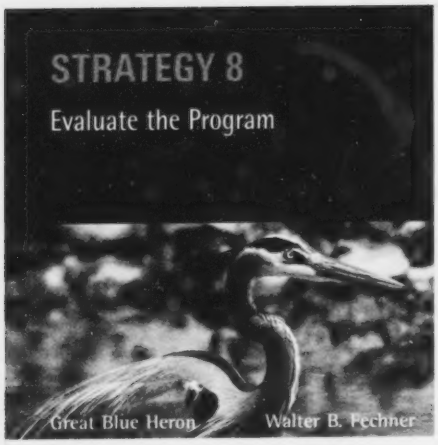
The FON collaborates with Bird Studies Canada and the Canadian Nature Federation in the Ontario portion of the IBA program, operated internationally by Bird Life International, which is a partnership of member-based organizations in over 100 countries. IBAs are sites that are exceptionally important for certain birds for some period of the year. These truly outstanding sites are of significance nationally or internationally. To determine if a site is an IBA requires:

- reliable information on the number of individual bird species and individuals that use a site during a specific time period; and,
- accepted population estimates for the species at global, continental and national levels.

The FON is responsible for delivering conservation planning for IBAs in Ontario. It has thus far coordinated the community-based conservation planning for 18 nationally to globally significant IBAs across the province. Local IBA committees, collaborating with FON, have developed and published these conservation strategies to protect birds and their habitats, and are now moving toward implementing the recommendations. Ontario wetland-based IBAs with completed conservation plans include eastern Lake St. Clair, Luther Marsh, Presqu'ile Provincial Park, Tiny Marsh and Wye Marsh.

Sandhill Crane

Walter B. Fechner



Progress under GLWCAP has been significant. The Implementation Team remains satisfied with activities and results to date, and recent praise from the Auditor General has increased recognition of the partnership.

Partners continue to actively promote wetland conservation to the public and all levels of government, are involved in ground-breaking wetland science, and have been successful in securing over 6,000 hectares of wetland through acquisition. Restoration projects continue all over the Great Lakes basin, facilitated through increased coordination between individuals and agencies interested in wetland conservation. Strategies such as *Strengthen Legislation, Policies, Agreements and Compliance*, remain a challenge with little direct control afforded to GLWCAP partners. It is hoped that in coming years, slowly, the milestones under this strategy will be realized through gradual influence and changing public perception about the importance of wetlands.

Many of the milestones were reached under the first plan, and renewed and expanded membership on the Implementation Team has ensured the thoughtful development of the second phase of GLWCAP. Planning Phase Two involved a great deal of collaboration and planning, which led to a longer timeframe for development, but in the end, resulted in a better product, with clearly defined milestones and commitment from partners.

It is recognized that even with concerted efforts, more can and should be done to prevent the ongoing losses of wetland occurring around the Great Lakes basin.

The Future - Introducing...

GLWCAP partners are pleased to present Phase Two of GLWCAP (2002-2007) in the following pages. This Action Plan will ensure that wetland science and conservation remains at the forefront of the mandates of governments and non-government organizations by sharing the workload and allowing partners to focus their respective strengths, interests, and resources.

Wetland conservation and science activities, technologies and understanding are constantly advancing with new knowledge on important issues such as invasive species and climate change. Partners will continue to adapt their mandates with this changing knowledge and as a result, GLWCAP will remain a fluid, living Action Plan with renewed enthusiasm and participation every five years.

STRATEGY 1

Increase Public Awareness and Commitment to Protecting Wetlands

Publicize information concerning wetland values, protection, rehabilitation, policies and regulations and encourage involvement by individuals, groups, corporations and industries in all aspects of Great Lakes wetlands protection and rehabilitation.

1.1 Publicize wetland values to society, to water, and to wildlife in order to encourage wetlands conservation. This may involve developing, publishing and distributing brochures, educational packages and status reports. Possible distribution vehicles include Ontario Ministry of Natural Resources district offices, Conservation Authority publications, and newsletters of non-governmental organizations.

1.2 Produce and distribute communication packages targeted to corporations, agriculture (including individual landowners), industry and development interests, school curriculum, and municipal and regional governments. Include information on opportunities for involvement in wetlands conservation.

1.3 Expand distribution network through web-based information and links (e.g., improve and maintain current GLWCAP website).

1.4 Provide a publicly accessible, web-based basic wetland attribute and mapping resource (e.g., provide Ontario Coastal Wetlands Atlas on-line – static maps). Linked to 2.2.

STRATEGY 2

Improve Wetland Science, Data and Monitoring

Conduct and facilitate study of wetland functions, status and trends to improve understanding, communicate values, and set priorities for protection and rehabilitation. Develop an accessible, computerized database for coastal Great Lakes wetlands.

2.1 Establish an interagency data-management group or technical coordination team.

2.2 Create/maintain an integrated computer database for coastal wetlands of the lower Great Lakes and expand to include the remainder of the Great Lakes basin (e.g., Ontario Coastal Wetlands Atlas, plans for interior Ontario wetlands, binational coastal outcome from Great Lakes Coastal Wetlands Consortium). Update the catalogue of existing coastal wetland databases (metadata) if necessary.

2.3 Continue wetland health monitoring at a variety of spatial and temporal scales (e.g., Durham Region Coastal Wetland Monitoring Project), including maintenance and enhancement of a binational Great Lakes wetland monitoring program (e.g., the community-based Marsh Monitoring Program, Great Lakes Coastal Wetlands Consortium indicators work).

2.4 Investigate and report on targets (e.g., SOLEC, individual agency), status and trends in wetland area and other attributes (e.g., Wetland Monitoring Pilot using Landsat for Durham and York Regions, University of Waterloo project using Compact Airborne Spectrographic Imager (*casi*) at St. Clair National Wildlife Area, participate in Great Lakes Coastal Wetlands Consortium to develop binational methodology for tracking trends).

2.5 Investigate and report on loss of wetlands (area and function) due to agricultural drainage and other causes in a selected watershed (e.g., Pembroke study, GRCA modeling exercise).

2.6 Investigate the science of wetlands including: the relationship between wetland hydrology and groundwater discharge/recharge; features that define faunal habitat preferences; wetland function within a landscape mosaic – hydrology, connections to uplands, buffers; exotics; species at risk; species toxicology; sensitivity to climate change; relationship between wetlands and water quality; and economic values.

2.7 Use up-to-date science to develop a more cost-effective methodology for evaluating wetland functions and values, while maintaining the scientific rigour of the provincial wetland evaluation system.

STRATEGY 3

Secure Wetlands

Determine priority securement sites and the most effective techniques to secure these sites. Focus existing securement programs on priority sites. Undertake wetlands securement at priority sites involving publicly-owned lands to demonstrate innovative securement strategies. Undertake extension and stewardship activities with private landowners to protect the area and function of existing Great Lakes basin wetlands and achieve the "no loss" long-term goals.

3.1 Secure 6,000 hectares of wetland.

3.2 Promote and facilitate improved responsible wetland protection and management (Strategy 4) on crown lands by all provincial and federal government agencies/owners (apply guidelines and policies from Strategy 5). Identify opportunities by documenting location and ownership of all provincially-owned lands with wetlands to complement existing federal report.

3.3 Convene an experts workshop to identify, map and describe biodiversity investment areas and develop a basin-wide conservation blueprint for priority securement.

3.4 Identify, promote and assist activities of Conservation Authorities and municipalities to maintain and improve, where necessary, the security and management of other publicly owned natural lands.

3.5 Promote and facilitate responsible wetland protection and management (Strategy 4) on private lands by landowners through extension and stewardship programs. For example organize workshops to promote local securement initiatives (e.g., St. Clair EHJV community advisory committee). Linked to Strategy 1.

Beaver

Eric Dresser

STRATEGY 4

Create, Reclaim, Rehabilitate and Manage Wetlands

Undertake rehabilitation projects at priority sites. Pursue opportunities for wetland rehabilitation/creation through existing programs including Remedial Action Plans and the Eastern Habitat Joint Venture. In the long-term, consider ecological and watershed-based goals to achieve an overall increase in the area and function of wetlands in the Great Lakes basin.

4.1 Rehabilitate/create 6,000 hectares of wetland.

4.2 Strengthen and enhance wetland rehabilitation and management expertise through training and technology transfer to rehabilitation practitioners.

4.3 Establish management plans on 6,000 hectares of secured or rehabilitated wetland, based on federal, provincial or non-government guidelines as appropriate. Develop and refine guidelines as needed.

STRATEGY 5

Strengthen Legislation, Policies, Agreements and Compliance

Refine and improve compliance with existing regulatory programs. Strengthen wetland conservation and protection through ongoing and upcoming regulatory/agreement/policy review opportunities.

5.1 Influence Official Plans through stewardship and other efforts to promote that wetlands be designated and zoned for conservation in local planning documents. Provide information to municipalities to facilitate planning (e.g., where are wetlands, what is their local function, etc...)

5.2 Periodically review the effectiveness of the provincial wetlands policy as part of the Province's five year review process and recommend any changes and resources required to improve effectiveness of the policy.

5.3 Evaluate and implement Parks and Forest Management Guidelines where appropriate for wetland management on provincially owned lands.

5.4 With appropriate agencies, review the application and effectiveness (positive and negative) of the *Federal Wetlands Policy, Fisheries Act, Canadian Environmental Assessment Act, Migratory Birds Convention Act, Agriculture Act, Species at Risk Act, Drainage Act, Lakes and Rivers Improvement Act, Conservation Authorities Act, Ontario Farm Practices Protection and Promotion Act*, with regard to wetlands protection and rehabilitation.

5.5 Conduct workshops involving Conservation Authorities, Ontario Ministry of Natural Resources, municipalities and other government and non-government stakeholders to review the effectiveness of current wetland conservation practices such as impact assessment and mitigation and provide necessary follow-up training and information exchange regarding site-specific techniques.

5.6 Review and evaluate grants, loans and other financial incentives/disincentives to determine their impact on wetland resources (including facilitating protection) (e.g., Conservation Land Tax Incentive Program, Managed Forest Tax Incentive Program).

5.7 Optimize implementation of GLWCAP through the Canada-Ontario Agreement Respecting the Great Lakes Basin Ecosystem.

Showy Lady's Slipper

STRATEGY 3

Secure Wetlands

Determine priority securement sites and the most effective techniques to secure these sites. Focus existing securement programs on priority sites. Undertake wetlands securement at priority sites involving publicly-owned lands to demonstrate innovative securement strategies. Undertake extension and stewardship activities with private landowners to protect the area and function of existing Great Lakes basin wetlands and achieve the "no loss" long-term goals.

3.1 Secure 6,000 hectares of wetland.

3.2 Promote and facilitate improved responsible wetland protection and management (Strategy 4) on crown lands by all provincial and federal government agencies/owners (apply guidelines and policies from Strategy 5). Identify opportunities by documenting location and ownership of all provincially-owned lands with wetlands to complement existing federal report.

3.3 Convene an experts workshop to identify, map and describe biodiversity investment areas and develop a basin-wide conservation blueprint for priority securement.

3.4 Identify, promote and assist activities of Conservation Authorities and municipalities to maintain and improve, where necessary, the security and management of other publicly owned natural lands.

3.5 Promote and facilitate responsible wetland protection and management (Strategy 4) on private lands by landowners through extension and stewardship programs. For example organize workshops to promote local securement initiatives (e.g., St. Clair EHJV community advisory committee). Linked to Strategy 1.

Beaver

STRATEGY 4

Rehabilitate Wetlands and Create Wetlands

Undertake rehabilitation projects at priority sites. Pursue opportunities for wetland rehabilitation/creation through existing programs including Remedial Action Plans and the Eastern Habitat Joint Venture. In the long-term, consider ecological and watershed-based goals to achieve an overall increase in the area and function of wetlands in the Great Lakes basin.

4.1 Rehabilitate/create 6,000 hectares of wetland.

4.2 Strengthen and enhance wetland rehabilitation and management expertise through training and technology transfer to rehabilitation practitioners.

4.3 Establish management plans on 6,000 hectares of secured or rehabilitated wetland, based on federal, provincial or non-government guidelines as appropriate. Develop and refine guidelines as needed.

STRATEGY 5

Refine and improve compliance with existing regulatory programs. Strengthen wetland conservation and protection through ongoing and upcoming regulatory/agreement/policy review opportunities.

5.1 Influence Official Plans through stewardship and other efforts to promote that wetlands be designated and zoned for conservation in local planning documents. Provide information to municipalities to facilitate planning (e.g., where are wetlands, what is their local function, etc...)

5.2 Periodically review the effectiveness of the provincial wetlands policy as part of the Province's five year review process and recommend any changes and resources required to improve effectiveness of the policy.

5.3 Evaluate and implement Parks and Forest Management Guidelines where appropriate for wetland management on provincially owned lands.

5.4 With appropriate agencies, review the application and effectiveness (positive and negative) of the *Federal Wetlands Policy, Fisheries Act, Canadian Environmental Assessment Act, Migratory Birds Convention Act, Agriculture Act, Species at Risk Act, Drainage Act, Lakes and Rivers Improvement Act, Conservation Authorities Act, Ontario Farm Practices Protection and Promotion Act*, with regard to wetlands protection and rehabilitation.

5.5 Conduct workshops involving Conservation Authorities, Ontario Ministry of Natural Resources, municipalities and other government and non-government stakeholders to review the effectiveness of current wetland conservation practices such as impact assessment and mitigation and provide necessary follow-up training and information exchange regarding site-specific techniques.

5.6 Review and evaluate grants, loans and other financial incentives/disincentives to determine their impact on wetland resources (including facilitating protection) (e.g., Conservation Land Tax Incentive Program, Managed Forest Tax Incentive Program).

5.7 Optimize implementation of GLWCAP through the Canada-Ontario Agreement Respecting the Great Lakes Basin Ecosystem.

Showy Lady's Slipper

STRATEGY 6

Strengthen Local Planning and Commitment to Wetland Conservation

Ensure that all new plans such as resource-management plans, watershed-management plans, and local land use plans, Official Plans and habitat management plans incorporate wetland protection and rehabilitation strategies. Also encourage recognition and designation of appropriate adjacent and upstream land uses.

6.1 Update Ontario Ministry of Natural Resources' natural heritage strategies and guidelines for coastal areas (crown lands) as required.

6.2 Identify, promote and assist activities of Conservation Authorities and municipalities to maintain current watershed plans/strategies, integrated resource-management plans, zoning and other activities for wetlands protection.

STRATEGY 7

Improve Coordination

Coordinate and integrate all Action Plan protection, rehabilitation and creation initiatives with other ongoing programs that affect Great Lakes wetlands, in particular activities associated with relevant international conventions and agreements.

7.1 Through linkages to Strategy 1 - maintain a current GLWCAP website with regular updates to share progress with wetlands stakeholders.

7.2 Build alliances with new and existing wetlands and other wildlife habitat conservation initiatives to ensure coordination and efficiency as well as facilitate reporting on the full range of wetland activities in the Great Lakes basin.

7.3 Coordinate binational Great Lakes wetlands activities (including Lakewide Management Plans, International Joint Commission Lake Ontario-St. Lawrence River Study, etc...)

7.4 Coordinate binational Great Lakes wetlands meetings to complement initiatives such as the North American Bird Conservation Initiative, Great Lakes Conservation Blueprints and State of the Lakes Ecosystem Conference.

STRATEGY 8

Evaluate the Program

Evaluate the Action Plan components, including a careful assessment of individual techniques and their application.

8.1 Share annual workplans by partners in implementation team.

8.2 Report on program progress at least twice during the lifespan of the Action Plan. First report in January 2003.

8.3 Regularly review program by all implementation team partners.

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